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A Report to:

The President and The Congress

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National Advisory Committee on Oceans and Atmosphere

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Ninth Annual Report
June 30, 1980

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(NACOA)

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National Advisory Committee on Oceans and Atmosphere

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Ninth Annual Report
June 30, 1980
Washington, D.C.

NATIONAL ADVISORY COMMITTEE
ON
OCEANS AND ATMOSPHERE
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

June 30, 1980

To the President and Members of Congress:

I have the honor to submit to you the Ninth Annual Report of the National Advisory Committee on Oceans and Atmosphere (NACOA).

Public Law 95-63, approved on July 5, 1977, establishes the Committee and requires that, among its other duties, the Committee shall submit an annual report to the President and Congress.

This report also is submitted to the Secretary of Commerce for comments and recommendations, as provided by the statute.

Respectfully,

Evelyn F. Murphy
Chairman

TABLE OF CONTENTS

TABLE OF CONTENTS

APPENDICES

TABLE OF CONTENTS

APPENDICES

FINDINGS AND RECOMMENDATIONS

CHAPTER 1

INTRODUCTION

Rapidly converging economic, political, and social concerns focus national attention on the activities and uses of the oceans and atmosphere. To aid the President and Congress in their assessment of the Nation's oceanic and atmospheric programs and policies, the National Advisory Committee on Oceans and Atmosphere (NACOA) continues to provide responsive and timely advice. NACOA's Ninth Annual Report presents the Committee's findings and recommendations on various oceanic, atmospheric, and coastal zone issues from June 30, 1979, to June 30, 1980.

To be an effective independent source of expertise on increasingly significant oceanic and atmospheric issues, the Presidentially appointed members of NACOA represent academia, business and industry, public interest organizations, and State and local government. Committee members are selected because of their expertise in atmospheric science, ecology, economics, law, oceanography, or private and public administration.

Mindful of its statutory mandate, NACOA chose, in large measure, marine and atmospheric issues of immediate interest and importance. Concerning oceanic issues, NACOA provided the Executive Branch and Congress with its findings and recommendations on coastal zone management, fishery development, NOAA organic act, oil spill liability and compensation, pollution, and the need to maintain support for oceanic and atmospheric sciences. Owing to conflicting regulatory practices dealing with the disposal of dredged materials under the Clean Water Act and the Ocean Dumping Act and because of controversies over the legislative ban on ocean disposal of sewage sludge and the proposed ban on ocean disposal of industrial wastes, the Committee is currently investigating the role of the ocean in a waste management strategy. NACOA expects to publish a special report next fall that will examine the present legal and regulatory framework that affects ocean disposal and will describe known ecological effects of ocean disposal of municipal and industrial wastes and dredged materials.

The President's declaration of 1980 as the "Year of the Coast" renewed national awareness of coastal fragility and deterioration and the urgency to protect and preserve our vital coastal resources. As Congressional hearings progressed in fall 1979 and spring 1980 on amendments to the Coastal Zone Management Act, up before Congress for its 1980 reauthorization, NACOA reemphasized its recommendations published in January 1979 in its special report, "Coastal Zone Management 1978."

The Fishery Conservation and Management Act of 1976 extended U.S. jurisdiction for management of fishery resources. New scientific knowledge and technological capabilities augment our domestic ability to gain increasing wealth from the sea. Concern over the national fishery trade deficit and the national benefits

that could be accrued through an effective fishery development program prompted a NACOA evaluation of the Administration's Policy and Program Statement, promulgated in May 1979.

A myriad of uncertainties continue to surround the effects of pollutants on the marine environment. Congress passed the National Ocean Pollution, Research, and Development and Monitoring Planning Act in May 1978. NACOA responded to the need for a significant Federal effort to research and to monitor ocean pollution by examining a comprehensive 5-year plan for Federal programs for ocean pollution that was prepared by the National Oceanic and Atmospheric Administration. Once pollution has occurred, the dilemma of who compensates the victim of pollution remains. The recent IXTOC I Oil Spill in the Bay of Campeche triggered Committee reexamination of its recommendations on oil spill liability and compensation presented before the 95th Congress. In its modified position presented before the 96th Congress, NACOA urged Congress to expand the "Superfund," which is maintained by a fee on oil, to include also spills of hazardous substances. NACOA will continue to monitor progress made to control pollution and to compensate victims of pollution damage.

Concerning major topics in atmospheric affairs, NACOA maintained its involvement in developing a national weather modification policy and program and in evaluating the National Climate Program and Plan. NACOA also reviewed a preliminary plan for a national agricultural weather program. This plan is still undergoing revisions, and NACOA intends to keep abreast of developments in the plan.

NACOA's Weather and Climate Panel has recently started reviewing the support for atmospheric research facilities. NACOA will ascertain the necessity of making comprehensive analyses of the needs for computers, instrumented aircraft, remote sensing, and high altitude, instrumented balloons. If NACOA determines that a more indepth study is warranted, the Committee will recommend that an appropriate department or agency conduct the study. NACOA may have to make budget estimates and procurement schedules; the Committee also may investigate new procedures for supporting facilities with long lifetimes. This will be an ongoing project in 1980 and 1981.

As the reporting year drew to a close, the Committee initiated some studies having long-range implications. It is becoming more and more evident that the oceans and atmosphere critically influence the national and world supplies of food, fuel, and minerals. Our Nation must plan more carefully and anticipate with greater accuracy how national policies will affect the oceans and atmosphere. The troubled course of negotiations at the United Nations Conference on Law of the Sea has demonstrated that the other nations of the world also are alert to the future value of oceanic resources, while the apparent success of the controlled 200-mile fishing zone has highlighted the present economic value of a more assertive U.S. ocean policy.

The termination of the International Decade of Ocean Exploration (IDOE) gave birth to new challenges for wise and fruitful use and development of our precious

oceans. In May 1979, Congress urged the President to dedicate the 1980's as the "Decade of Ocean Resource Use and Management." Consequently, NACOA may undertake one of the most challenging tasks of its 10-year existence. Over the next year, the Committee will review the possibility of assessing in a systematic, area-by-area approach, what goals and objectives the United States should strive to achieve in the conduct of its oceanic affairs in the 1980's. In the past, the Nation has been unnecessarily slow to realize the full potential of its oceanic resources and to recognize the vital need to assess national ocean directions, because it has followed a problem-by-problem approach rather than a holistic, future-oriented policy. By charting a clear, decisive course of action, the United States can enhance ocean resource use and development. In the coming years, NACOA will attempt to help establish that course.

In retrospect and review of NACOA activities over the past year, the Committee has provided the President and Congress with recommendations on a significant number of national oceanic and atmospheric programs and policies. However, major areas of concern remain to be addressed. Because of the lack of the full, authorized membership of 18, NACOA was missing expertise in areas, such as energy, fisheries, and ocean minerals. Owing to deaths, resignations, and appointment terminations, Committee membership fell to a low of eight members in October 1979. The Federal process of nominations and appointments has been slow; NACOA has had no more than 13 members during the year. Less than authorized strength handicaps the Committee from having representation in essential areas of expertise and inhibits the Committee from examining many issues.

In conclusion, the Committee is honored to have been able to serve as a prominent focus of public advisory participation in the democratic decisionmaking process. NACOA looks forward to helping the Nation meet the oceanic and atmospheric challenges of the 1980's.

CHAPTER 2

COASTAL ZONE MANAGEMENT ACT AMENDMENTS

Background

In its Eighth Annual Report, NACOA summarized its recommendations to the President and Congress for amendments to the Coastal Zone Management Act of 1972 (CZMA). In January 1979, NACOA issued a special report, "Coastal Zone Management 1978," in which it spelled out in detail its proposed recommendations for changes to the CZMA, including recommended legislative language. Since the publication of NACOA's Eighth Annual Report, NACOA has continued to remind the Administration and Congress of its earlier recommendations. On October 10, 1979, NACOA Chairman Evelyn Murphy testified before the Subcommittee on Oceanography, Committee on Merchant Marine and Fisheries, U.S. House of Representatives, on NACOA's proposed amendments. On April 16, 1980, Chairman Murphy again testified before the same Subcommittee on the Administration's bill, H.R. 6956, and the Oceanography Subcommittee's bill, H.R. 6956. Dr. Murphy's prepared statements appear in appendices G and I. On April 24, 1980, the Oceanography Subcommittee voted to remove the proposed changes to the CZMA that were contained in H.R. 6979, which paralleled NACOA's recommended "third-phase" of coastal zone management. NACOA had strongly supported that provision in its testimony of April 16, 1980. On April 28, 1980, NACOA made its views known to the Senate Committee on Commerce, Science and Transportation (Commerce Committee) prior to its scheduled hearing on April 30, 1980, on the Administration's proposed amendments to the CZMA. That letter appears in appendix I.

NACOA's April 28, 1980, letter to Senator Cannon, Chairman of the Senate Commerce Committee, reiterates NACOA's strong belief that a new "third-phase" of coastal management is needed to obtain the original objectives of that Act. Furthermore, as the April 28 letter points out, NACOA strongly recommends that the "Federal Consistency" provision, Section 307, of the CZMA should be amended and simplified to give the States the final decisionmaking authority in the determination of whether a proposed Federal activity comports with the State Coastal Zone Management Plan. Neither the Administration's bill, nor the House Oceanography Subcommittee bill, H.R. 6979, had addressed the consistency question.

Findings and Recommendations

NACOA remains committed to the recommendations that it made one year ago for amendments to the Coastal Zone Management Act, and although we have seen support for those recommendations in the form of H.R. 6979 as introduced, and recognize that nearly all witnesses who testified on H.R. 6979 supported those substantive changes, NACOA repeats its earlier recommendations:

1. Congress should amend Sec. 307(c) of the Act, the so-called "Federal Consistency" section, to give States the right to make the final determination of whether or not a Federal activity is consistent with the State's Coastal Management Plan.

2. Congress should amend Sec. 306 of the CZMA to establish a voluntary third phase of the Coastal Zone Management Program that will build on the present Act to achieve the designation of areas of particular concern, including specific areas that would be identified for the highest degree of protection. If a State fails to enter this voluntary third phase, Federal activities would be required to conform to specified standards for areas of particular concern.

3. Congress should broaden the application of its Coastal Energy Impact Program grants so that the States can use part of their share of these grants to support research in coastal zone management or augment the funds otherwise available to support implementation of a State's coastal program.

CHAPTER 3

FEDERAL PLAN FOR OCEAN POLLUTION RESEARCH, DEVELOPMENT, AND MONITORING, FISCAL YEARS 1979-83

Background

The National Ocean Pollution, Research, and Development and Monitoring Planning Act of 1978 (P.L. 95-273) was signed into law in May 1978. The Act calls for the Executive Branch to submit a plan to Congress that would "establish a comprehensive 5-year plan for Federal ocean pollution research and development and monitoring programs in order to provide planning for coordination of and dissemination of information with respect to such programs within the Federal Government." In addition, the Act calls for a revision of the 5-year plan every two years.

Public Law 95-273 assigns responsiblility for preparation of the plan to the Administrator of the National Oceanic and Atmospheric Administration (NOAA). According to the Act, the plan has to provide a detailed inventory of existing Federal programs, assess and order national needs and problems, analyze the extent to which existing programs assisted in meeting priorities, make recommendations for needed changes in the overall Federal effort, and report on efforts for budget coordination. An interagency task force was formed to gather and analyze the information required to draft the plan.

NOAA released a preliminary draft plan for comment on April 30, 1979, to a number of organizations, including NACOA. NACOA reviewed the first draft and responded to the Chairman of the Interagency Committee on Ocean Pollution Research, Development, and Monitoring on May 11, 1979. NACOA noted certain deficiencies in the preliminary draft: The draft appeared to be more of an inventory of Federal activities than a plan for the future; gaps existed in the data presented and the recommendation to make data more available in a timely and usable form; NOAA should assume a stronger leadership role; and the suggested funding of $155 million per year seemed too modest to meet national needs. The Committee suggested that judgements on funding be made after the task was better defined.

Following comments from a number of sources, the interagency task force revised and published in August 1979 the "Federal Plan for Ocean Pollution Research, Development, and Monitoring, Fiscal Years 1979-83."

Findings and Recommendations

The Committee is impressed with the major strides made in the published version to clarify goals, tasks, and priorities for national efforts in regard to ocean pollution. NACOA finds the plan to be a useful basis upon which the to build a

significant Federal effort, and wishes to support the plan despite the following concerns:

1. The plan does not provide an adequate means to ensure implementation of the desired tasks. Without a system of overall program coordination and a means of achieving general conformance to an accepted plan, the Federal program in the future could be the sum total of what agencies desire to undertake.

2. Although the revised version addresses some of the problems that NACOA noted in the preliminary draft, the August 1979 plan does not address in a sufficiently systematic manner the problems and questions relating to the origin, effects, and control of pollution. To implement the plan, responsibility for goals and tasks must be clearly designated and funding needs specified.

NACOA forwarded its comments on September 13, 1979, to the Chairman of the Interagency Committee on Ocean Pollution Research, Development, and Monitoring.

CHAPTER 4

FISHERY DEVELOPMENT POLICY

Background

In 1976, the U.S. Congress passed the Fishery Conservation and Management Act (FCMA). The Act established the U.S. Fishery Conservation Zone (FCZ), which extended U.S. jurisdiction for management of fishery resources, except highly migratory species of tuna, to 200 nautical miles from the baseline from which the territorial sea is measured. This extension brought an estimated 20 percent of the world's fishery resources under U.S. control.

According to the report, "Fisheries of the United States, 1978," published by the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA), world landings of fish were 73.5 million metric tons (162 billion pounds) in 1977, the most recent year for which data were available. Of this total, the United States, which ranked fifth in terms of world catch, landed 3.1 million metric tons or about 4 percent of the total.

In 1978, the United States had a deficit of $2.1 billion in its balance of payments related to fisheries. Although the FCMA provides a basic framework to assure a continuing optimum yield of fish in the FCZ, it does not provide for any government program to deal directly with the impediments to increased use of FCZ resources for the national benefit. Recognizing this problem, the Department of Commerce (DOC) initiated two actions. First, the Deputy Undersecretary of Commerce called for an export and domestic market study on fisheries. Second, a DOC task force was organized to examine the problems of fishery development, the Federal role in the development process, and appropriate policies and programs for fishery development. These efforts led to the promulgation of a U.S. fishery development policy, defined in the Administration's "Policy and Program Statement" released on May 23, 1979.

The Administration's policy was aimed at hastening the goals set forth in the FCMA, i.e., conservation and management of U.S. fishery resources and the development of the U.S. fishing industry, to provide a major source of employment, a significant contribution to the U.S. economy, and support to U.S. coastal communities. After review and evaluation of the Administration's fishery development policy and program, NACOA arrived at the findings and recommendations listed below. (See appendix J.)

Findings and Recommendations

1. NACOA fully supports the direction and purpose of the Administration's

fishery development program, but questions whether its goals are set high enough, and whether it could achieve even these goals with the resources proposed.

2. Our fishery trade deficit of $2.1 billion in 1978, although clearly a fraction of the energy deficit, represents a significant part of our balance-of-payment deficit. With a potential of perhaps 20 percent of the world catch, but with a current actual share of only 4 percent, our fisheries could generally be considered underutilized resources that deserve more national attention, that could benefit the Nation through the investment of public funds in programs that promised excellent returns, and that could aid in reducing our balance-of-payment deficit.

3. Although the Administration describes the program as historic, NACOA finds the goal of the program to be uncharacteristically modest. NACOA wonders what kinds of considerations limit us to going only halfway by 1990 -- to reducing the trade deficit by only $1.0 billion out of $2.1 billion that exists.

4. NACOA understands that the Administration proposed funding for fiscal years (FY) 1981 to 1984 at about $20 million per year. This compares with an estimated $18 million for FY 1980. (The FY 80 total includes both the Operation Research and Facility and the Saltonstall-Kennedy Act funding.) If the FY 81 funding of $20 million per year is adjusted for inflation at an assumed rate of 9 percent per year, the real increase in available funds between 1980 and 1981 would be about 1 percent for this "historic" program. NACOA questions whether any such almost imperceptible increase in total funding could be expected to achieve material gains in U.S. commercial fishery development.

5. Achievement of the goals of the fishery development policy will require the the concerted efforts of a number of Federal agencies. These include, in addition to DOC, the Treasury Department, Internal Revenue Service, Environmental Protection Agency, Department of Energy, and the Food and Drug Administration among others. The Office of Management and Budget (OMB) needs to implement actively this policy throughout the Executive Branch and to provide the guidance necessary to assure interagency coordination.

6. In the area of indirect benefits, NACOA supports the proposed liberalization of regulations governing conditional fisheries to qualify "combination" vessels for the Capital Construction Fund (CCF) and the Vessel Obligation Guarantee Program (VOGP) benefits provided that such vessels are engaged at least partially in non-traditional fisheries. In this context, however, NACOA opposes the requirement that such vessels be engaged "primarily" in any particular fishery, because the term is ambiguous, is difficult to measure fairly, and invites abuse.

   In addition, NACOA notes the undertaking to "study" the possibility of extending CCF privileges to shoreside facilities. Although NACOA recognizes the need for interagency concurrence on such an item, the Committee is nevertheless

disappointed that it emerges as no more than a possibility. The absence of adequate receiving, processing, and distribution facilities, whether shore-based or afloat, is a major obstacle to the further development of our Nation's fishing industry. Our harvesting capability already threatens to outstrip our ability to bring fish products to market. Each step in the expansion of our fishing industry must be coordinated in a balanced, well-integrated manner.

NACOA finds it both internally inconsistent, and at variance with the above principle, that the benefits of CCF and obligation guarantees are extended to the harvesting segment of the industry but nowhere else down the line. Where processing or distribution facilities are clearly serving the harvesting function, through common ownership and/or long-term supply contracts, they could logically enjoy equal access to such benefits. A further result of such a policy would be the encouragement of "new-entry" investment in the processing and distribution segments of the industry for third parties as well as for persons presently engaged in harvesting only.

7. NACOA notes that the present policy, to the extent that it extends benefits to the harvesting phases that are not available to any of the downstream phases of the industry, tends thereby to promote the exporting of unprocessed products and the importing of processed products, to the obvious detriment of our Nation's trade balance. The policy revision NACOA urges could reverse this phenomenon, i.e., our exports could be in processed form; and our imports, to the extent they must occur at all, could be raw material.

8. NACOA strongly concurs with the fishery policy statement that would establish the setting of fixed dates by which time development projects must prove commercial feasibility or lose Federal funding.

NACOA's recommendations were forwarded on July 30, 1979, to: Assistant to the President for Domestic Affairs and Policy; Director of the Office of Management and Budget; Secretary of Commerce; Administrator of the National Oceanic and Atmospheric Administration; Chairman of the House Subcommittee on Fisheries, Wildlife Conservation and the Environment; and Minority Leader of the Committee on Merchant Marine and Fisheries.

Chapter 5

NATIONAL CLIMATE PROGRAM

Background

The National Climate Program Act (Public Law 95-367) established a National Climate Program Office (NPCO) as the lead entity responsible for administering the program. The legislation described the program elements: impact assessments; basic and applied research; climate prediction; data collection and analysis; information and data dissemination, including mechanisms for consultation with users of such information; international cooperation; intergovernmental climate program; experimental forecast centers; and a 5-year plan for the program. NACOA, a long-time advocate of a climate program, strongly endorsed the National Climate Program Act enacted in 1978.

The contents of the 5-year plan that will be presented to Congress have been the focus of the NACOA activity. As called for by the Act, NCPO drafted a preliminary 5-year plan for the National Climate Program (NCP) in spring 1979. NACOA, as well as other organizations, reviewed this plan.

Hearings were held July 12, 1979, by the House Subcommittee on National Resources and the Environment. The Climate Research Board (CRB) of the National Academy of Sciences gave the plan a detailed review in July 1979. Generally, the consensus was that major revisions in the plan were needed.

On September 11, 1979, NACOA forwarded its recommendations on the preliminary 5-year plan for the National Climate Program to NCPO. The Committee suggested that a level of priority be assigned to each of the three major goals: research on the nature of climate, studies on climatic impacts, and application of climatological data, data summaries, and services. The Committee also recommended that the component parts of each goal be defined in terms of objectives and programs, that priorities be assigned to budgets proposed, and that time schedules be established for each of the objectives and programs. The Committee felt that the roles of the various components of the NCP, i.e., NCPO, other Federal agencies, State agencies, universities, and the private sector, should be specified and should include mechanisms and provisions for direction, cooperation, coordination, integration, and the resolution of conflicts. In addition, NACOA stressed the need for regular, periodic reviews of existing activities by experts from Federal and State governments, universities, and the private sector.

NCPO produced the draft of the final 5-year plan in March 1980. It showed major modifications to the preliminary plan and incorporated many of the changes suggested by the various reviews, particularly those of CRB. (NACOA's testimony appears in appendix K.)

Findings and Recommendations

At the Senate hearings on April 17, 1980, before the Subcommittee on Science, Technology and Space, NACOA made the following comments on the final draft plan:

1. The plan serves in most respects as a sound basis for moving ahead with the National Climate Program. It represents a substantial improvement over the preliminary version which was the subject of much debate in the Committees of Congress and within the scientific and user community.

2. The plan now sets forth a reasonable strategy for the National Climate Program that is close to that proposed by the Climate Research Board (CRB). The plan also provides a mechanism to organize the effort so that the program will provide useful outputs at an early date and simultaneously expand our understanding of climate and its relation to society. The priority program areas identified in the plan also seem to be reasonable.

3. The plan now identifies agency responsibilities and indicates lead agencies for major program elements. Organizationally, however, the National Climate Program Office continues to have only the authority of persuasion to discharge its responsibilities. It does not appear to have the funding power that would enable it to work more effectively with other agencies. Participation of other agencies and budgetary support for various elements of the program still depend upon the priorities assigned to them within the individual agencies.

4. NACOA is concerned about the adequacy of the funding and about the relatively small budgetary increases from FY 1979 to FY 1981 for the Department of Commerce and the National Science Foundation to carry out their responsibilities.

5. There is one aspect of the plan with which NACOA continues to remain dissatisfied. It deals with the importance accorded to the Intergovernmental Climate Program. The Committee feels this important part of the program is essential to carry out the first stream of the program; namely, the production of climate information at an early date. Timely information can increase the efficiency and reduce the impact of climate variability upon various sectors of our economy. NACOA is pleased that the new plan does at least provide for an Intergovernmental Climate Program and that it is along the lines NACOA recommended, i.e., namely, a demonstration program to show the economic benefits that might flow from such intergovernmental effort. However, the resources accorded to the plan will be insufficient to carry out a reasonable effort.

6. In summation, the plan represents a giant step forward in providing a basis for the National Climate Program.

CHAPTER 6

OIL SPILL LIABILITY AND COMPENSATION LEGISLATION

Background

NACOA maintained a very active interest in pending oil spill liability and compensation legislation during the 95th Congress. This included testimony and a side-by-side comparison of pending House and Senate bills, which can be found in NACOA's Eighth Annual Report.

In the 96th Congress, the oil spill liability and compensation legislation that failed of enactment in the 95th Congress was reintroduced in the form of H.R. 85 in the House of Representatives in nearly identical form to that which failed in the 95th Congress. NACOA testified on March 14, 1979, before the House Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, on H.R. 85 and H.R. 29. The latter is a somewhat broader bill that Congressman Studds of Massachusetts had introduced. In its March 1979 testimony before the House Subcommittee on Coast Guard and Navigation, NACOA took the same position as it had during the 95th Congress. (NACOA's testimony on March 14, 1979, appears in appendix VII-1 of NACOA's Eighth Annual Report.) In mid-1979, the Administration sent a bill to Congress, commonly referred to as the "ultrafund" (S. 1341 and H.R. 4566). A few weeks later the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works introduced its own bill, S. 1480 (the Culver-Muskie bill), which was an even broader attempt to solve some of the abandoned waste site problems that the Administration attempts to cope with in S. 1341. NACOA held an intersessional meeting in Houston, Texas, in July 1979, and reexamined its earlier positions on oil spill liability legislation, hazardous substance spills, and abandoned hazardous waste sites. These issues had been injected into the controversy late in the 95th Congress, and were highlighted by the Administration's bill and the Culver-Muskie bill. On July 20, 1979, Sharron Stewart presented NACOA's position on proposed legislation for oil, hazardous substance, and hazardous waste response, liability, and compensation before the Senate Subcommittees on Resource Protection and Environmental Pollution. (See appendix L.) NACOA revised its position on oil spill liability legislation, which Michael Naess presented in testimony before the House Subcommittee on Water Resources of the Committee on Public Works and Transportation, on September 26, 1979. Because the issues are complex, appendices N and O contain Mr. Naess's prepared text and verbal remarks.

NACOA, in its modified position of September 1979, supported the expansion of the "Superfund" concept to include spills of hazardous substances into navigable waters, in addition to oil spills. NACOA opposed the inclusion of abandoned hazardous waste sites, and the payment of personal injury claims, within such

a Superfund scheme. In part, this shift in position resulted from NACOA's belief that an "oil-only" bill did not have a chance of passage in the 96th Congress.

On May 7, 1980, the House Committee on Public Works and Transportation reported out H.R. 85 as a two-title bill. Title I of H.R. 85 is basically the same as the oil-only bill that was reported out of the House Merchant Marine and Fisheries Committee. Title IV, which was added to H.R. 85 by the Committee on Public Works and Transportation, provides exactly the same third-party claim coverage for hazardous substance spills as H.R. 85 did originally for oil, and also creates a "Superfund" from a fee imposed on the chemical industry for hazardous substance spills into navigable waters.

During spring 1980, the Senate Subcommittees marking up S. 1480 appeared to have reached an impasse because of the massive problems associated with abandoned waste sites and the questions of liability and personal injury. NACOA continues to support the notion embodied in the House bill, H.R. 85 as amended by the Public Works Committee, which would deal with oil and hazardous substance spills, economic damages, cleanup costs, and natural resource damage costs. We hope that some form of this legislation will come out of the 96th Congress.

NACOA, as part of its concern within the area of oil spill liability and compensation, participated in two other forums this past year. The first was a joint Congressional hearing on the IXTOC I oil blowout in the Gulf of Mexico, held at Corpus Christi, Texas, on September 9, 1979. The second was a workshop on tank-barge pollution, conducted by the National Academy of Sciences under a U.S. Coast Guard contract, on April 15 and 16, 1980. At the IXTOC I hearing, Sharron Stewart of NACOA presented NACOA's views on the capability of the United States to deal with oil spills at sea, as well as some of the unique problems encountered off the coast of Texas with the IXTOC oil, particularly the problem of submerged oil. (See appendix M.)

NACOA's presentation at the workshop on tank-barge pollution was an outgrowth of a letter sent by NACOA to the Secretary of Transportation on March 25, 1980, which discussed the Secretary's comments on one of NACOA's recommendations in its Eighth Annual Report. In the Eighth Annual Report, and in its testimony in March 1979 before the House Oceanography Subcommittee, NACOA objected to the notion of subjecting owners and operators of inland oil barges to lower limits of liability than owners and operators of ocean-certificated barges and tank vessels of the self-propelled type. NACOA held that the spills which take place from inland oil barges cause more damage per gallon spilled, and cost more to clean up per gallon spilled, than do spills in the ocean or in coastal waters. Using U.S. Coast Guard oil spill statistics, as well as publicly reported cases from Federal courts, NACOA showed that under the Federal Water Pollution Control Act the United States was unable to recover all of its cleanup costs from a series of barge spills. The Committee extended this problem by analogy into what NACOA felt the situation would be like under a regime, such as that envisioned by H.R. 85. (See appendix P.)

Findings and Recommendations

In addition to the recommendations made in its Eighth Annual Report, NACOA has made several new recommendations on oil spill liability and response. The following is a summary of these recommendations, which are presented in more detail in the testimony and other material accompanying this section:

1. There should be no distinction between liability levels set for inland oil barges and those set for ocean-certificated barges and self-propelled tank vessels. If any distinction is called for, the facts contained in appendix R show that the inland oil barge owners and operators should bear the higher, not the lower, liability limitations.

2. The IXTOC I oil well blowout may have demonstrated that the world's capability to clean up an oil spill on the high seas is much less than what was previously thought. NACOA calls for an intensive review of the successes and failures associated with that blowout, particularly with the variety of cleanup efforts that were attempted at the site, and asks that a thorough evaluation of U.S. efforts in this area be made.

3. The discovery of submerged oil off the coast of Texas, following the IXTOC oil well blowout, raised a serious concern in the minds of the scientific community. NACOA expresses this concern in its testimony at Corpus Christi in 1979. NACOA calls for an intensive study of the problem of submerged oil, with the objective of reexamining the U.S. practice of not dealing with oil spills until they reach the shore.

4. NACOA strongly supports the efforts of Federal and State agencies following the IXTOC I oil well blowout to conduct an assessment of damages to natural resources along the coast of the Gulf of Mexico. The cost of damage assessment alone has been variously estimated to range from $1.5 to $10 million. We were concerned then, and our concerns have been borne out, that no effort would be made even to measure the damages, much less to correct them.

5. The Committee strongly urges Congress to enact an oil and hazardous and substance spill liability bill, such as H.R. 85, as reported by the House Committee on Public Works and Transportation. NACOA recommends that such legislation be enacted as an amendment to Section 311 to the Federal Water Pollution Control Act, so that the courts will not be faced with a myriad of new definitions, but rather can rely on 10 years of experience with the Federal Water Pollution Control Act. NACOA recommends that any effort to to deal with abandoned hazardous waste sites not be considered with the problem of spills in navigable waters, and that such legislation be considered separately, or as a separate title.

CHAPTER 7

ORGANIC ACT FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Background

At the request of Senators Cannon, Hollings, and Magnuson and of Representative Ambro, NACOA devoted its meetings on February 14 and 15, 1980, to issues concerning an organic act for the National Oceanic and Atmospheric Administration (NOAA). Knowledgable representatives from academia, government, and the commercial sectors briefed NACOA and provided an updated basis for deliberation among the NACOA membership.

In 1978, NACOA had carried out a major study of the Federal structure for oceanic and atmospheric affairs. NACOA considered the value of an organic act for a strengthened NOAA during that study. In 1979 and in the first quarter of 1980, NACOA followed closely the progress, both within NOAA and Congress, toward developing an organic act for NOAA.

The social and political environment in which NOAA functions today is very different from that when NOAA was formed in 1970. A growing national awareness of the significant changes taking place in our coastal zones brought about coastal zone management. Concern for the possible extinction of oceanic creatures brought about protection for marine mammals and other endangered species. The need to protect the environment provided measures to look carefully into waste disposal in the ocean. Concern over our fisheries brought about conservation and management within a 200-mile zone around our coasts. And most recently, Congress has mandated specific national planning responsiblities for climate and ocean pollution monitoring and research.

For each of these initiatives, and in some cases major landmark actions as in coastal zone management and in fishery conservation and management, Congress has found in NOAA a reasonable focus and home for responsibility. These new responsibilities, in addition to the many responsibilities that came when various organizational components were merged when NOAA was formed, have resulted in a NOAA that now must function under about 100 different statutory authorities.

Moreover, additional areas of activity of considerable significance are presently gathering headway or are possible, such as planning for weather modification research and development; the recently added responsibilities by the President for managing all operational civilian remote sensing activities from space to complement its oceanic and meteorological space sensing functions; and the likely assignment of the deep seabed mining function for which the Secretary of Commerce has informed Congress of the President's preference for NOAA as the responsible Federal agency.

Findings and Recommendations

NACOA supports the concept of an organic act for the NOAA. The act should codify and clarify the legislation under which NOAA now functions. It also should give NOAA authority to perform those activities that have been assigned to it by executive order or by reorganization plan.

In its deliberations, the Committee agreed that an organic act for NOAA would:

1. Provide an opportunity for Congress and the Administration to express their views on the functions and goals of NOAA. The only statement outlining the functions and goals of NOAA is a brief one in the President's message that accompanied Reorganization Plan #4 in 1970, when NOAA was created. Over the past decade, NOAA has been given many additional responsibilities by statute and Presidential directive. These responsibilities now should be integrated into a legislative statement of functions and goals for NOAA. Such a statement would establish a new and comprehensive statutory framework in which NOAA can plan and carry out its present and future responsibilities.

2. Codify and simplify the diverse legislative authorities under which NOAA now operates. This would provide a useful reference document that would facilitate the common understanding of the functions and responsibilities of NOAA for governmental officials, Congress, and the general public.

3. Describe those functions now performed by NOAA. This is an opportunity to give statutory basis to functions that are implicitly encompassed under present authorities but that now deserve explicit recognition.

4. Clarify those present authorities of NOAA that overlap or appear to overlap those of other agencies.

5. Affirm and describe the diverse coordinating roles now assigned to NOAA under separate authorities. It could establish procedures to assure that coordination does, in fact, occur.

6. Provide an opportunity to establish a comprehensive authorization process by which Congress can periodically review NOAA programs and assess goals and priorities. Present program authorizations are for different time periods, and no opportunity exists for comprehensive review by Congress. More systematic authorization processes would permit program descriptions, program analyses, and authorization requests to reflect the broader and interrelated functions of NOAA in a comprehensive manner.

7. Make the internal operations of NOAA more efficient by clearly specifying that various administrative, financial, and logistical authorities pertain to all NOAA programs if appropriate.

8. Express the intent of Congress for a strengthened NOAA as the central civil agency for oceanic and atmospheric affairs.

In its deliberations NACOA recognized certain caveats. The Committee feels that an organic act should not:

1. Describe the specific and detailed programs of NOAA; instead, it should describe primarily the functions and goals of the organization.

2. Attempt to reorganize the Federal structure for oceanic and atmospheric affairs; neither should it transfer responsibility from one agency or department to another.

3. Specify the functions, goals, and organization of NOAA in such detail as to prevent programmatic and organizational adjustment to changing needs. For example, the organic act should not specify the responsibilities of the assistant administrators.

CHAPTER 8

RESEARCH AND DEVELOPMENT (R&D) PROGRAM OF THE U.S. COAST GUARD

Background

Demands placed upon the U.S. Coast Guard have progressively increased since its formation, but have dramatically accelerated over the past few years. In addition to its historic role for coastal and vessel safety, Congress has given the U.S. Coast Guard additional duties and responsibilities, such as enforcement of fishery and drug laws, oil pollution prevention and cleanup, and supervision of marine sanctuaries.

As a result of conversations between Admiral John B. Hayes, Commandant of the U.S. Coast Guard, and the late Donald McKernan, NACOA's former Chairman, NACOA initiated a review of the research and development (R&D) program of the U.S. Coast Guard. NACOA believes that the tasks ahead require the U.S. Coast Guard to strengthen significantly its R&D efforts. The agency cannot rely on existing off-the-shelf technology or use extensions or extrapolations of existing capabilities to meet national needs in the future. The R&D Office of the U.S. Coast Guard recognized the need for a vigorous internal R&D program. However, NACOA felt that for the U.S. Coast Guard to fulfill its responsibilities in the 1980's and 1990's, Congress, the Office of Management and Budget, and the Department of Transportation also must realize this need and and take appropriate action.

Findings and Recommendations

1. The R&D budget should be increased by 0.75 percent of the total U.S. Coast Guard budget per year until the R&D program is funded at 8 percent of the agency budget per year. An R&D budget of less than 3 percent of the total agency budget (and decreasing in recent years) handicaps the U.S. Coast Guard in developing the scientific and technological capabilities necessary to address national concerns in shipping, ports, environment, enforcement, and safety. (Eight percent approximates the figure considered necessary by industry and the Department of Defense for the R&D needs of organizations involved with or dependent upon technology.)

2. The competitive, interactive review procedure to establish the U.S. Coast Guard R&D program appears overly structured, and NACOA questions whether this procedure produces the best R&D program. The large number of small programs under review and the detail and the justifications required appears to consume excessively funds, time, and staff power. NACOA recommends that the review procedure be reassessed to minimize paperwork and to determine program resource levels requiring the review of the Commandant and Chief of Staff.

3. The R&D program of the U.S. Coast Guard appears fragmented, has few focused efforts addressing overall agency long-term needs, and tends to be oriented towards short-term operational and engineering improvements. NACOA suggests that 25 to 30 percent of R&D funds be designated for a separate exploratory development funding category. These funds should not be subject to the competitive process and should be used by the Chief of R&D for exploratory development and long-term, multimission R&D.

4. Funds available to the Chief, Office of R&D, for independent research should be increased from the present (Aug. 1979), clearly inadequate $100,000 to at least $1 million per year.

5. NACOA sees too much "reactive research" and believes that the Coast Guard Office of R&D should initiate an increasing number of programs in anticipation of future concerns of the U.S. Coast Guard. These efforts should be directed towards evolving newer concepts, techniques, and directions to fulfill the agency's many Congressional mandates.

6. The U.S. Coast Guard should strive for a greater ratio of civilian-to-uniformed personnel. NACOA suggests a 2:1 ratio be reached over the next 10 years. Additionally, the Committee believes that U.S. Coast Guard R&D is technically understaffed and needs a significant increase in positions.

7. The present rotation of uniformed personnel from R&D to the operational divisions and back to R&D is vital in assuring close ties between R&D and the rest of the organization.

These findings and recommendations were forwarded to the Commandant of the U.S. Coast Guard, the Secretary of Transportation, and the Director of the Office of Management and Budget on August 7, 1979.

CHAPTER 9

SUPPORT FOR OCEANIC AND ATMOSPHERIC SCIENCES

Background

Because of the central role that the National Science Foundation (NSF) plays in the support of basic research for oceanic and atmospheric sciences, NACOA reviewed NSF's support effort and relayed its findings to that agency in May 1980.

Findings and Recommendations

NACOA recognizes that many of the most important oceanic and atmospheric science programs require teams of investigation and the use of major facilities. Principally through the efforts of NSF, the United States has established strong research programs of great diversity within the academic community. These programs allow scientists to attack problems of varying logistical complexity. These programs also have provided the basic understanding of a wide range of phenomena. From this information, the Nation has been able to make management, regulatory, and operating decisions for those activities that take place within or have an effect upon oceans and atmosphere.

The Committee is convinced that the next decade will witness a burgeoning number of problems of major national economic and political importance for which we will need much improved understanding of atmospheric and oceanic processes. These needs should be attended not only by the agencies whose missions are closely related to the national problems, but also by NSF, which has the responsibility among all the agencies for ensuring the health of basic science in our university community. The basic research component supported by NSF is the only part of the enterprise that responds directly to the ideas and proposals of scientists motivated by scientific opportunities rather than needs. The Nation's pool of understanding would be impoverished, indeed, if this component were in any way curtailed. Scientific problems confronting meteorologists and oceanographers are challenging and can be solved given adequate and stable support.

Major new concerns are developing that will require improved understanding of the oceans and atmosphere. Good examples are the projected impacts on climate and the attendant energy and food policy issues of increasing amounts of carbon dioxide in the atmosphere. NACOA believes that the most important steps that can be taken now are to expand our knowledge of the fundamental environmental processes that control the global carbon cycle, to improve our capabilities for mathematically modeling oceans and atmosphere to enable us to determine the sensitivity of atmospheric conditions to human intervention in climatic conditions, and to develop a deeper understanding than we have today of the role of the upper layers of the ocean in influencing global climate. These concerns about anthropogenic effects upon the climate are superimposed upon our concern for the impacts of natural climate fluctuations that over the past

decade have caused aberrations in the world food supply and that also directly affect our national food policies.

Another example of problems needing urgent attention is the impact of atmospheric and oceanic pollution on society. Acid rain is a case in point as is the disposal of toxic and other wastes at sea. Fundamental knowledge of chemical and ecological processes in estuaries and oceans is grossly inadequate. Yet, this Nation is continually being asked to make policy decisions that carry great economic and social costs concerning waste management in these areas.

The Administration and Congress are now planning major long-term programs to examine the fundamental aspects of cloud physics and dynamics as a basis for a more vigorous program in weather modification. We have begun to realize that our problems here are in understanding the physical processes that take place within clouds and the dynamics of these cloud systems, as well as their energetics. A resurgence of need exists for basic approaches to these processes.

Advances over the past few decades in understanding the complex processes and phenomena of the upper atmosphere have been truly outstanding. There is a continuing need for vigorous research to resolve uncertainties and to make it possible to deal with the important societal activities that are affected by the high atmosphere. For example, we need to know much more about modification of the ozonosphere by anthropogenic chemicals and their consequences. The present regulatory steps with respect to the use of fluorocarbons is an example of the need to have available the basic knowledge that can enable us to respond to the regulatory and policy needs of our society.

The recent revolution in the Earth sciences as a result of the theory of plate techtonics holds promise for development of a deeper understanding of Earth processes including the distribution of metals on the Earth. Most of the clues to this developing theory are to be found in the Earth beneath the ocean. Because of continuing support by NSF, oceanographers also are much closer today to understanding the foundation and distribution of manganese nodules on the sea floor, a resource worth billions of dollars.

Our knowledge of the interaction between oceans and atmosphere remains deficient. Such knowledge is needed if we are to understand the nature of oceanic motions and predict their future state. These are matters of substantial importance to our ability to deal with ocean pollution conditions and ensure wise management of the ocean's resources.

Our Nation's ability to manage the oceans' living resources wisely depends on a much improved understanding of marine ecosystems and their reactions under the stress of overfishing, pollution, or habitat destruction. There is a need for an improved understanding of population dynamics of marine species -- the interaction between biological and physical ocean systems. All of these are major problems calling for a much greater pool of basic knowledge of atmospheric and oceanic phenomena than we currently have. NACOA could cite many more.

Because the study of atmospheric and oceanic phenomena by the individual investi-

gators as well as by teams of investigators requires access to complex and expensive facilities, adequate facility support is an essential element for advancement of basic research in these fields. Clearly the operation and maintenance of these facilities is expensive, but much of what needs to be done can be done no other way. Support for ships, satellites, aircraft, computers, and field observing systems must be regarded as central to a successful basic research effort in the years ahead. It is not possible to study phenomena on the scale of atmospheric storms, ocean currents, plate techtonics, or climate without the massing of extensive facilities. Even small-scale oceanic and atmospheric phenomena, ranging from the turbulent to the mesoscale, require measurements that cannot be made without special field facilities.

The availability of facilities for research in these fields is being gradually eroded by increasing costs of operation, particularly the costs of fuel. We have deep concerns for the maintenance of the ocean research vessels as well as the aircraft fleet. Unless adequate facility support is forthcoming, the strength of our basic investigations into oceanic and atmospheric phenomena for the scientists in our universities will falter and the strong academic research centers built up over the years will deteriorate.

We do not believe it is in the national interest that this be allowed to happen. We have been successful in building an infrastructure of fine scientists, institutions, and facilities in atmospheric and oceanic sciences over the past several decades in the United States. This infrastrucutre is now positioned to produce the basic knowledge that the Nation requires. This infrasturcture, however, requires sustenance and encouragement, and we look to the National Science Foundation, as well as to other agencies, to provide the necessary support.

Appendix Q contains NSF's reply to NACOA's findings and recommendations.

CHAPTER 10

WASTE MANAGEMENT

Background

In mid-1979, Representative Gerry E. Studds, Chairman of the Oceanography Subcommittee of the U.S. House of Representatives Committee on Merchant Marine and Fisheries, asked NACOA to begin an investigation into ocean disposal of sewage sludges, dredged materials, and industrial wastes. NACOA formed a Panel on Waste Management to examine these issues in depth, and their work is nearly finished as this annual report goes to press. NACOA intends to submit a special report to the President and Congress by fall of this year. The special report will examine the three types of waste that were the subject of Congressman Studds' request, as well as the issue of subseabed disposal of high-level radioactive wastes. The report will include an examination of the present legal and regulatory framework that affects ocean disposal; the known ecological effects of ocean disposal of municipal and industrial wastes and dredged materials; and NACOA's recommendations.

Findings and Recommendations

The Waste Management Panel had not submitted its recommendations to NACOA before this annual report went to press; thus, this section can only touch on items of a general nature pertaining to this ongoing effort.

NACOA wrote to Congressman Studds on November 20, 1979, to express the Committee's concern that an outright ban on ocean disposal of a broad class of wastes is not appropriate to problems involving waste management. That letter indicated NACOA's view that the wastes themselves should be managed, not the particular receiving media. NACOA suggested that Congress not include an outright ban on the disposal of industrial wastes in the ocean after December 31, 1981, a ban patterned after the existing ban on sewage sludge disposal. NACOA hoped that, even if the industrial waste deadline were adopted, the legislative history of that amendment to the Ocean Dumping Act would show that it was only "harmful" industrial wastes that were intended to be covered, and that the notion of "harmful" involves more than simply an examination of the effects of waste disposal on the marine environment. NACOA suggested that Congress require the Administrator of the Environmental Protection Agency (EPA) to make a finding that an alternative to the proposed ocean disposal of industrial wastes exists, and that the alternative is feasible, before EPA could turn down a request for an ocean dumping permit. (See appendix R.)

NACOA has heard lengthy technical presentations on the effects of disposing sewage sludge in the marine environment, land disposal of sewage sludge, and subseabed disposal of high-level radioactive wastes. NACOA also has

reviewed the effects of dredged material disposal in the marine environment, and has talked at length with generators of industrial wastes on their plans for disposal of their waste streams in the future. In the industrial waste area, NACOA is concerned that implementation of the Resource Conservation and Recovery Act of 1976 (RCRA) would foreclose available land disposal options for the industrial community, and create pressures for a return to the previous practice of widespread ocean disposal of these wastes. NACOA is continuing to examine these issues at this time, and will report on its conclusions and recommendations in the near future.

CHAPTER 11

WEATHER MODIFICATION

Background

NACOA expressed views on the need for a national policy on weather modification in its 1st, 2nd, 4th, 5th, 6th, and 8th annual reports. A national weather modification policy and program has been long overdue, but the issues in developing such a program are complex and are scientific, technical, legal, economic, and social in nature. The issues that NACOA addressed were the feasibility and needs for a policy and program and the institutional structure of such a program.

In 1976, Congress enacted the National Weather Modification Act, which called for the Secretary of Commerce to conduct a comprehensive study of weather modification to develop a national policy and program. The Secretary established a Weather Modification Advisory Board to carry out this task; the board submitted a report to the Secretary in June 1978.

Hearings were held by the Senate Subcommittee on Science, Technology and Space of the Committee on Commerce, Science and Transportation on October 24-25, 1979. Appendix S presents NACOA's testimony.

The Acting Secretary of Commerce submitted to the President and Congress its report, "National Weather Modification Policies and Programs," in November 1979.

Finding and Recommendations

1. The Committee urges Congress to adopt a comprehensive, national weather modification policy and a national program of weather modification research and development.

2. Major continuing programs of fundamental research on natural mechanisms of cloud and precipitation formation should be conducted.

3. Carefully designed, randomized cloud-seeding programs should be conducted in different climatological areas of the United States to develop precipitation modification and severe storm mitigation technologies at an early date.

4. Continuing studies should be made on the societal impacts of an effective weather modification program.

5. Existing research programs on weather modification should be maintained in the National Oceanic and Atmospheric Administration, the

Bureau of Reclamation, the National Aeronautics and Space Administration, and the National Science Foundation; however, our Nation must establish a stronger planning and coordination mechanism and substantially increase the funding to a level that is more nearly commensurate with the needs.

6. Planning and coordination should be at the level of the Office of Science and Technology Policy and should include representatives from government, universities, and the private sector in developing plans to deal with the national interests rather than those of a particular agency.

APPENDICES

APPENDIX A

NACOA'S LEGISLATIVE HISTORY

On August 16, 1971, Congress passed Public Law 92-125 which created the National Advisory Committee on Oceans and Atmosphere (NACOA). The Committee was established as a result of recommendations contained in a January 1969 report submitted to Congress by the Stratton Commission -- a Commission formed by Congress to examine marine science affairs and to develop a national strategy for a well-integrated, centrally coordinated program. Congress reauthorized NACOA in 1972 and 1975. The 1975 amendments added new responsibilities to the Committee's original mandate. Public Law 92-125 had required NACOA to undertake a continuing review of the Nation's marine and atmospheric science and service programs; the 1975 amendments extended Committee review to national ocean policy and coastal zone management. Secondly, the original act had required NACOA to submit special reports as requested from time to time by the President. The 1975 amendments required NACOA to repond also to requests for special reports from Congress.

Public Law 95-63, passed July 5, 1977, repealed Public Law 92-165, and mandated NACOA to: "1) Undertake a continuing review, on a selective basis, of national ocean policy, coastal zone management, and the status of marine and atmospheric science and service programs of the United States; and 2) advise the Secretary of Commerce with respect to the carrying out of the programs of the National Oceanic and Atmospheric Administration (NOAA)." In addition, the Committee is required to submit an annual report to the President and Congress, and submit other reports that may from time to time be requested by the President or Congress.

Public Law 95-63 spells out the qualifications, terms, and duties of NACOA members. The President appoints the Committee's 18 members, who may not be full-time officers or employees of the Federal Government. The President selects individuals who are eminently qualified in areas of direct concern to the Committee. As the law states, members must have knowledge or expertise in:

1. One or more of the disciplines and fields included in marine science and technology, marine industry, marine-related State and local governmental functions, coastal zone management, or other fields directly appropriate for consideration of matters of ocean policy; or

2. One or more of the disciplines and fields included in atmospheric science, atmospheric-related State and local governmental functions, or other fields directly appropriate for consideration of matters of atmospheric policy.

Members serve 3-year terms of office. The President designates the Chairman

and Vice Chairman from Committee membership. To be an effective independent source of expertise and advice on increasingly significant oceanic and atmospheric issues, Congress established the Committee as an advisory body of 18 members.

Public Law 95-63
95th Congress

An Act

To establish qualifications for individuals appointed to the National Advisory Committee on Oceans and Atmosphere and to authorize appropriations for the Committee for fiscal year 1978.

July 5, 1977
[H.R. 3849]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Advisory Committee on Oceans and Atmosphere Act of 1977".

National Advisory Committee on Oceans and Atmosphere Act of 1977.
33 USC 857-13 note.

SEC. 2. ESTABLISHMENT.

There is hereby established a committee of 18 members to be known as the National Advisory Committee on Oceans and Atmosphere (hereinafter in this Act referred to as the "Committee").

33 USC 857-13.

SEC. 3. MEMBERSHIP, TERMS, AND DUTIES.

33 USC 857-14.

(a) MEMBERSHIP.—The members of the Committee, who may not be full-time officers or employees of the United States, shall be appointed by the President. Members shall be appointed only from among individuals who are eminently qualified by way of knowledge and expertise in the following areas of direct concern to the Committee—

(1) one or more of the disciplines and fields included in marine science and technology, marine industry, marine-related State and local governmental functions, coastal zone management, or other fields directly appropriate for consideration of matters of ocean policy; or

(2) one or more of the disciplines and fields included in atmospheric science, atmospheric-related State and local governmental functions, or other fields directly appropriate for consideration of matters of atmospheric policy.

(b) TERMS.—(1) The term of office of a member of the Committee shall be 3 years; except that, of the original appointees, 6 shall be appointed for a term of 1 year, 6 shall be appointed for a term of 2 years, and 6 shall be appointed for a term of 3 years.

(2) Any individual appointed to fill a vacancy occurring before the expiration of the term for which his or her predecessor was appointed shall be appointed only for the remainder of such term. No individual may be reappointed to the Committee for more than one additional 3-year term. A member may serve after the date of the expiration of the term of office for which appointed until his or her successor has taken office, or until 90 days after such date, whichever is earlier. The terms of office for members first appointed after the date of enactment of this Act shall begin on July 1, 1977.

Vacancies.

(c) CHAIRMAN.—The President shall designate one of the members of the Committee as the Chairman and one of the members as the Vice Chairman. The Vice Chairman shall act as Chairman in the absence or incapacity of, or in the event of a vacancy in the office of, the Chairman.

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(d) DUTIES.—The Committee shall—

(1) undertake a continuing review, on a selective basis, of national ocean policy, coastal zone management, and the status of the marine and atmospheric science and service programs of the United States; and

(2) advise the Secretary of Commerce with respect to the carrying out of the programs administered by the National Oceanic and Atmospheric Administration.

33 USC 857-15.

SEC. 4. REPORTS.

Submittal to President and Congress.

(a) IN GENERAL.—The Committee shall submit an annual report to the President and to the Congress setting forth an assessment, on a selective basis, of the status of the Nation's marine and atmospheric activities, and shall submit such other reports as may from time to time be requested by the President or the Congress.

(b) REVIEW BY SECRETARY.—Each annual report shall also be submitted to the Secretary of Commerce, who shall, within 60 days after receipt thereof, transmit his or her comments and recommendations to the President and to the Congress.

(c) ANNUAL REPORT SUBMITTAL.—The annual report required under subsection (a) shall be submitted on or before June 30 of each year, beginning with June 30, 1978.

33 USC 857-16.

SEC. 5. COMPENSATION AND TRAVEL EXPENSES.

Members of the Committee shall each be entitled to receive compensation of $100 per day for each day (including traveltime) during which they are engaged in the actual performance of the duties of the Committee. In addition, while away from their homes or regular places of business in the performance of the duties of the Committee, each member of the Committee shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703(b) of title 5 of the United States Code.

33 USC 857-17.

SEC. 6. INTERAGENCY COOPERATION AND ASSISTANCE.

Senior policy official.

(a) LIAISON.—The head of each department or agency of the Federal Government concerned with marine and atmospheric matters shall designate a senior policy official to participate as observer in the work of the Committee and offer necessary assistance.

(b) AGENCY ASSISTANCE.—The Committee is authorized to request from the head of any department, agency, or independent instrumentality of the Federal Government any information and assistance it deems necessary to carry out the functions assigned under this Act. The head of each such department, agency, or instrumentality is authorized to cooperate with the Committee, and, to the extent permitted by law, to furnish such information and assistance to the Committee upon request made by the Chairman, without reimbursement for such services and assistance.

(c) ADMINISTRATIVE ASSISTANCE.—The Secretary of Commerce shall make available to the Committee such staff, information, personnel, and administrative services and assistance as may reasonably be required to carry out the provisions of this Act.

SEC. 7. REPEAL AND TRANSFER.

(a) REPEAL.—The Act of August 16, 1971 (establishing an advisory committee on oceans and atmosphere) (33 U.S.C. 857-6 et seq.) is hereby repealed.

(b) TRANSFER.—All personnel, positions, records, and unexpended balances of appropriations, allocations, and other funds employed, used, held, available, or to be made available in connection with the functions specified by the Act of August 16, 1971 (establishing an advisory committee on oceans and atmosphere), are hereby transferred to the National Advisory Committee on Oceans and Atmosphere established by this Act. The personnel transferred under this subsection shall be so transferred without reduction in classification or compensation except, that after such transfer, such personnel shall be subject to reductions in classification or compensation in the same manner, to the same extent, and according to the same procedure as other employees of the United States classified and compensated according to the General Schedule in title 5, United States Code.

33 USC 857-13 note.

5 USC 5332 note.

SEC. 8. AUTHORIZATION FOR APPROPRIATIONS.

33 USC 857-18.

There are authorized to be appropriated for purposes of carrying out the provisions of this Act not to exceed $520,000 for the fiscal year ending September 30, 1978. Such sums as may be appropriated under this section shall remain available until expended.

Approved July 5, 1977.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-297 (Comm. on Merchant Marine and Fisheries).
SENATE REPORT No. 95-211 accompanying S. 1347 (Comm. on Commerce, Science, and Transportation).
CONGRESSIONAL RECORD, Vol. 123 (1977):
May 16, considered and passed House.
May 23, considered and passed Senate, amended, in lieu of S. 1347.
June 21, House concurred in Senate amendment with amendments.
June 22, Senate concurred in House amendments.

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APPENDIX C

Public Law 95-304
95th Congress

An Act

To amend the National Advisory Committee on Oceans and Atmosphere Act of 1977 to authorize appropriations to carry out the provisions of such Act for fiscal year 1979, and for other purposes.

June 29, 1978
[H.R. 10823]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Advisory Committee on Oceans and Atmosphere Act of 1977 (33 U.S.C. 857-13—857-18) is amended—

National Advisory Committee on Oceans and Atmosphere Act of 1977, amendment.
33 USC 857-14.

(1) by striking out "except that" and all that follows thereafter in section 3(b)(1) and inserting in lieu thereof "except that of the original appointees, 6 shall be appointed for a term to expire on July 1, 1979, 6 shall be appointed for a term to expire on July 1, 1980, and 6 shall be appointed for a term to expire on July 1, 1981."; and

33 USC 857-18.

(2) by striking out "1978." in section 8 and inserting in lieu thereof "1978, and $572,000 for the fiscal year ending September 30, 1979.".

Approved June 29, 1978.

[H.R. 3577, as passed by the House of Representatives on May 14, 1979, (125 Cong. Rec. H3077-78) would authorize $550,000 for NACOA for fiscal year 1980; as passed by the Senate on June 4, 1979, (125 Cong. Rec. S6833), the bill would authorize $565,000 for fiscal year 1980 and $600,000 for fiscal year 1981. Both versions of the bill delete the last sentence of Sec. 8 of Public Law 95-63.]

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-1013 (Comm. on Merchant Marine and Fisheries).
SENATE REPORT No. 95-862 (Comm. on Commerce, Science, and Transportation).
CONGRESSIONAL RECORD, Vol. 124 (1978):
Apr. 17, considered and passed House.
June 5, considered and passed Senate, amended.
June 14, House concurred in Senate amendment.

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☆ U.S. GOVERNMENT PRINTING OFFICE : 1979 O—295-624

APPENDIX D

Congress of the United States

May 18, 1979

The Honorable Jimmy Carter
President
The White House
Washington, D.C. 20501

Dear Mr. President:

The Congress has long recognized the importance of the oceans to our national security and social well-being. We have continually urged Presidential recognition of the need for a clear and comprehensive national ocean policy. Such a policy is essential for enlightened planning, for well-structured and meaningful programs, for highly visible and dedicated leadership and for a vigorous and productive civil oceans-related effort.

On several occasions, you have expressed your personal commitment to a strong national oceans posture. As a presidential candidate you voiced your concern that "America is a great maritime power, but we are in grave danger of losing our leadership because we lack a fundamental policy for the oceans." You further stated that "(t)ogether with the Congress, the President must develop a coherent and consistent national ocean policy...."

Last year, the Congress enacted a joint resolution authorizing a National Oceans Week celebration. As the first President ever to proclaim such an observance for the oceans, you exclaimed that "(t)he world community looks to the oceans as a vital source of food, energy and mineral resources, while they remain crucial to trade...."

We are now completing "an historic and unprecedented adventure - an International Decade of Ocean Exploration for the 1970's," which was declared by President Johnson in 1968. That initiative brought together many nations in the pursuit of greater ocean knowledge. During the 1970's, we have also witnessed the continuing seaward expansion of commercial enterprises and have seen the potential catastrophic effects which offshore accidents can have on human and marine life, facilities, equipment, and the coastal zone. We believe, Mr. President, that the next decade holds an even greater challenge for all nations. The oceans-related scientific and technological skills and expertise gained in the Decade of Ocean Exploration can now be applied during a decade dedicated to using the oceans and managing the oceans' resources to achieve their greatest potential - for the betterment of our country and of all people.

Consequently, we now ask you, in concert with this year's oceans week celebration, to take a clear and definitive action to demonstrate your support for the wise development, use, and management of the oceans. Specifically, Mr. President, we request that you dedicate the 1980's as a Decade of Ocean Resource Use and Management--a decade in which we will apply our talents and capabilities in the proper and reasoned use and management of the oceans.

Such a dedication would be dramatic evidence of your personal commitment to a renewed oceans-related thrust. This decade would also provide the opportunity to give strong leadership and enhanced responsibilities to our acknowledged civil oceans agency by placing the planning and management of this presidential initiative in the National Oceanic and Atmospheric Administration.

We do not expect, nor advocate, a costly undertaking in this dedication. We believe that renewed focusing of existing civil and military efforts, coupled with greater coordination among federal agencies and between government and industry, can provide substantive meaning and direction to this new decade.

Mr. President, we urge you to look seaward and to know that your leadership and cooperation are vital in strengthening our national oceans posture. We in the Congress stand ready to assist you in exerting this leadership and in dedicating the 1980's as the Decade of Ocean Resource Use and Management.

Sincerely,

BILL ALEXANDER, M.C.

JOHN M. MURPHY, M.C.

JIM WRIGHT, M.C.

HARLEY O. STAGGERS, M.C.

HAROLD T. JOHNSON, M.C.

MELVIN PRICE, M.C.

JOSEPH P. ADDABBO, M.C.

CLEMENT J. ZABLOCKI, M.C.

JAMIE L. WHITTEN, M.C.

DON FUQUA, M.C.

JOHN SLACK, M.C.

BENJAMIN S. ROSENTHAL, M.C.

CHARLES A. VANIK, M.C.

JOHN B. BREAUX, M.C.

SILVIO O. CONTE, M.C.

ROBERT N. GIAIMO, M.C.

FRANK HORTON, M.C.

CLARENCE D. LONG, M.C.

TRENT LOTT, M.C.

PAUL N. McCLOSKEY, JR, M.C.

BOB WILSON, M.C.

MARIO BIAGGI, M.C.

ROBERT DUNCAN, M.C.

EDWARD P. BOLAND, M.C.

CHARLES H. WILSON, M.C.

JOEL PRITCHARD, M.C.

MIKE McCORMACK, M.C.

OLYMPIA J. SNOWE, M.C.

NORMAN D. DICKS, M.C.

GERRY E. STUDDS, M.C.

DON YOUNG, M.C.

GEORGE E. BROWN, JR., M.C.

TED STEVENS, U.S.S.

DANIEL J. AKAKA, M.C.

WARREN G. MAGNUSON, U.S.S.

DAVID F. EMERY, M.C.

ERNEST F. HOLLINGS, U.S.S.

CECIL HEFTEL, M.C.

HOWARD W. CANNON, U.S.S.

BO GINN, M.C.

LOWELL P. WEICKER, JR., U.S.S.

EDWIN R. FORSYTHE, M.C.

JOHN C. STENNIS, U.S.S.

BARBARA A. MIKULSKI, M.C.

DICK STONE, U.S.S.

JEROME A. AMBRO, M.C.

HENRY M. JACKSON, U.S.S.

LES AuCOIN, M.C.

SPARK M. MATSUNAGA, U.S.S.

CHRISTOPHER J. DODD, M.C.

BOB PACKWOOD, U.S.S.

JOHN W. WARNER, U.S.S.

ADLAI E. STEVENSON, U.S.S.

APPENDIX E

NATIONAL ADVISORY COMMITTEE
ON
OCEANS AND ATMOSPHERE
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

September 13, 1979

Mr. Stuart E. Eizenstat
Assistant to the President for
Domestic Affairs & Policy
The White House
Washington, D.C. 20500

Dear Mr. Eizenstat:

At a recent meeting with Mr. R. D. Folsom of your staff, we discussed the May 18 letter addressed to the President by 43 members of Congress recommending that the President dedicate the 1980's as a Decade of Ocean Resource Use and Management, a decade in which the Nation can apply its talents and capabilities to the proper and reasoned use and management of the oceans. The National Advisory Committee on Oceans and Atmosphere has further discussed the recommendations of the members of Congress and agrees that such a dedication of the 1980's would indeed be dramatic evidence of the President's personal commitment to a renewed oceans-related thrust.

NACOA enthusiastically supports the enunciation of such a program, but believes that it will only be meaningful if there are well defined goals to be achieved during the decade. We are prepared, with the cooperation of the ocean community, to develop those goals and to work with the Executive in developing the broad strategy for their achievement. As part of its ocean and atmosphere oversight responsibility, NACOA is also prepared to report annually to the President and the Congress on the progress made in achieving those goals. Our Committee agrees that the decade of the 80's will indeed hold a greater challenge for all nations than the decade of the 70's as the continued expansion of commercial enterprises moves seaward with the potential impact which this can have on the marine environment.

NACOA is anxious to meet with you to discuss further our role in outlining the decade. We are available to meet with you at a convenient time.

Sincerely,

Evelyn F. Murphy
Chairman

APPENDIX F

THE WHITE HOUSE

WASHINGTON

November 26, 1979

Dear Ms. Murphy:

Thank you for your letter concerning the proposed designation of the 1980's as a decade of Ocean Resource Use and Management.

I welcome and appreciate NACOA's interest in this effort and encourage your active participation.

I also share your view that well-defined goals are necessary to making this designation meaningful. It is especially important, therefore, that NACOA should make an important contribution to the development of this proposal. R. D. Folsom will continue to keep me posted about the efforts to identify those goals.

Best wishes,

Sincerely,

Stuart E. Eizenstat

Stuart E. Eizenstat
Assistant to the President
for Domestic Affairs and Policy

Ms. Evelyn F. Murphy
Chairman
National Advisory Committee on
Oceans and Atmosphere
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

APPENDIX G

TESTIMONY

Evelyn F. Murphy
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittee on Oceanography
Committee on Merchant Marine and Fisheries

U.S. House of Representatives
96th Congress
Washington, D.C.

October 10, 1979

INTRODUCTION

Mr. Chairman and Members of the Subcommittee:

My name is Evelyn Murphy, and I am the Chairman of the National Advisory Committee on Oceans and Atmosphere (NACOA). I thank you for the opportunity to testify on one of the most important issues before our Nation today. NACOA is an 18-member, Presidentially appointed body of non-Federal individuals, with a legislated mandate to advise both Congress and the President on selected oceanic, atmospheric, and coastal zone issues.

The original 25-member NACOA, in its first annual report released on June 30, 1972, strongly recommended passage of what became the Coastal Zone Management Act of 1972 (CZMA). The "new" NACOA has had coastal zone management (CZM) on its agenda since its first meeting last year, and we will continue to show considerable interest in this area for the foreseeable future. In our special report, "Coastal Zone Management 1978," released January 29, 1979, we came to the conclusion that some changes to the original Act would be desirable if the CZMA was to provide eventually the kind of rational land-use decisionmaking that Congress hoped for when the Act was passed seven years ago. I do not propose to read from that document, or even to paraphrase its recommendations, but would ask at this point that we be allowed to submit it for the record. What I would like to do today is to reflect on the rationale behind our legislative proposals; in other words, why are these amendments necessary?

DEFICIENCIES OF THE COASTAL ZONE MANAGEMENT ACT

The salient deficiency of the CZMA is its fundamental weakness in protecting fragile coastal resources. This weakness also has precluded crucial planning for development and economic growth. These two necessities are interdependent, and the delicate balance needed to promote both has not been forthcoming.

Impediment to Effective Protection

Despite the pressing nature of coastal problems and the inadequacy of existing institutional and regulatory frameworks to address these problems, the CZMA has not led to passage of major new State legislation nor to major alterations in State and local institutional structures. The failure of the CZMA to date is attributable to several factors. These include: the voluntary nature of the program, weak Federal implementation of the program, the uncertainty of the benefits accruing to States with approved programs, and the lack of a conceptual framework regarding "national interests."

The voluntary aspect of the CZMA has significantly undermined the program's efficacy. A State need merely drop out of the program if it believes that the Office of Coastal Zone Management (OCZM) is demanding too much. In order to keep States in the program, OCZM must appeal to the lowest common denominator. This subsequently leads to very weak Federal implementation efforts. In order to be effective, every eligible State must participate. Coastal areas of significant importance do not necessarily adhere to State boundaries. The prime incentives for State participation are the availability of Federal funding for program development and implementation as well as the promise of consistency of Federal activities in the coastal zone with approved State management programs. Incentives must therefore be strong, yet they are not.

Annual appropriations for implementation under §306 of the Act are small. States with approved programs may receive only one or two million dollars per year for program implementation. The number of years for such funding is unclear. One or two years of Federal funding is insufficient incentive for State participation -- nor does it constitute a sufficient lever for Federal insistance on strong State programs.

The Federal consistency provision was expected to achieve two goals: (1) the right of approved States to invoke Federal consistency was expected to provide an incentive for States to adopt management programs, and (2) to bring about a "coordination, rather than duplicating mechanism". Neither of these expectations is being fully realized.

As an incentive to promote State-level support for the development of good coastal management programs, Federal consistency has several shortcomings. (1) Considerable confusion has arisen regarding the extent to which consistency issues can be pressed by the State. The CZMA's lack of clarity regarding consistency has resulted in various degrees of Federal-State impasse over who has authority. The statute must

clarify who has the final say. (2) At the same time, significant Federal activities may be beyond the control of even those States having approved programs, i.e., *military installation* exemptions. (3) While some limits on State consistency claims are necessary to protect the concept of national interest, the present limits undermine the incentive for States to adopt strong CZM programs. The major expectations for Federal consistency were that it would reduce State and Federal duplication and enhance dicisionmaking. If State and Federal agencies' cooperation is to resolve administrative inconsistency, Federal consistency procedures must be clearer and more precise. Congress also can address some of the drawbacks, by directing agencies at all levels to find practicable means to combine, standardize, and hopefully eliminate overlapping procedures. Most important, there should be a common analytical procedure used to review proposed projects so that applicants and agencies are working with an agreed set of facts and factfinding processes. The State would have the key role in this coordination process.

Congressional reconsideration of the consistency provision should be closely tied to an effort to define national interest. If not carefully and simultaneously considered, the two concepts could become entangled and inconsistent.

The CZM does not provide for coherent interpretation or applicability of national interest considerations. What is coastal zone management in its national context? One position is that it is merely a regulatory program to prevent the wrong thing from happening in sensitive coastal areas. The other position is that coastal zone management can assume a very positive, direct, and encompassing perspective which, on the positive side, would encourage appropriate development along the shoreline in consideration of national or regional economic interests. NACOA has adopted the broader perspective. Coastal Zone Management includes regulatory aspects to prevent loss and damage to delicate ecosystems, yet should optimize the broad public benefit relative to growth along shorelines, ports, and harbors. References to national interest in the statute are sufficiently spotty and ambiguous as to promote great administrative confusion. The truth of the matter is that nobody knows what the concept of "national interest" means as it is used here. It is neither defined in the CZMA nor in NOAA regulations.

Lacking conceptual framework, State administrators are forced to pull together a patchwork definition from Federal statutes, regulations, and their own estimation as to what constitutes "national interest." The public, developers, and Federal agencies have no criteria on which to judge the appropriateness of a State's interpretation. As a result, administrative and judicial confusion may exist.

While some partial clarification of this issue has resulted from recent judicial opinions, it would seem appropriate that Congress consider the proper scope of "national interest" and provide a clear definition. This in turn might imply that the Federal Government engage in some greater level of national planning in close conjunction with State planning efforts.

The national interest must play a heavily or at least a substantially weighted part in each important coastal decision. Congress has to provide the conceptual framework in order to make the notion work within the State coastal zone programs.

PROGRAM SUCCESS

Clearly, the Coastal Zone Management Act as it now stands has had a positive impact in some respects. The voluntary Federal-State effort must be credited with bringing home to many residents of the coastal zone, and their elected officials, an awareness of the importance that should be attached to careful planning for the many diverse elements in these areas. In the States with approved CZM programs, a trend towards more predictable and easily articulated standards can be seen. Certainly, one of the original goals of the CZMA was to encourage simplification of the overall local, State, and Federal planning process the controls coast development. At the very least, this process appears to be working at the State level.

SPECIFIC RECOMMENDATIONS

(1) "Third phase" - NACOA recommends that a voluntary "third phase" be created which would build on the existing structure of the CZMA. This phase would address three impact areas: (1) protection, (2) development, and (3) case-by-case decisional processes. This phase would allow for specific designation of environmentally sensitive geographic areas precluding those areas, such as barrier islands, dunes, and salt marshes, from development, and earmark them for protective planning. The "third phase" also would encourage development in areas that are determined to be environmentally safe. In most cases, this would mean expanding upon the already significant development potential inherent in harbors, ports, and semideveloped locations. It would constitute a deliberate channeling of activities into areas that can still withstand phenomenal growth, while minimizing the adverse ecological impacts of additional coastal development. The "third phase" also would clarify the planning process for those "gray areas" which lie in between these extremes. Those areas would be analyzed on a case-by-case basis.

(2) Limited mandatory provision - NACOA recommends that States which choose to discontinue their participation in the present programs or the proposed "third phase" be placed under a limited form of Federal standards which would be applicable only to Federal activities in a State's coastal zone.

(3) Amended §307 "Federal consistency" - NACOA recommends that §307 be amended to give States the right to make the final determination of whether or not a planned Federal activity is "consistent" with the State's Coastal Management Plan. This proposed amendment would reverse the existing administrative interpretation of §307(c)(1) and (2), and would promote uniformity in the handling of all Federal activities within the State's coastal zone.

(4) Amended §306 - Implementation Funds - NACOA strongly supports a five-year reauthorization of §306 funding at the present level, with amendments to allow States the option of diverting CEIP monies into the actual management of State programs. The NACOA recommendations include language that would tie this optional use of CEIP funds to a State's willingness to participate in the voluntary "third phase" of coastal zone management.

NACOA, representing the full spectrum of those concerned, from business to environmental advocates, asserts that the coastal zone program is important and ought to be strengthened. We offer the above modifications in a belief that such measures will enable the program to meet everyone's concerns in a more forthright manner.

Thank you, Mr. Chairman. This completes my statement.

APPENDIX H

TESTIMONY

Evelyn F. Murphy
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittee on Oceanography
Committee on Merchant Marine and Fisheries

U.S. House of Representatives
96th Congress
Washington, D.C.

April 16, 1980

Mr. Chairman, members of the Oceanography Subcommittee, good morning. I am Evelyn Murphy, Chairman of the National Advisory Committee on Oceans and Atmosphere (NACOA). I appreciate the opportunity to appear today to testify on the proposals to amend the Coastal Zone Management Act of 1972.

As you know, NACOA is a Presidentially appointed body of non-Federal individuals, representing industry, State and local government, academia, and the environmental community. Over a year ago, NACOA provided its recommendations to Congress and to the President regarding amendments to the Coastal Zone Management Act. As recently as last October, I discussed these recommendations in testimony before this subcommittee. Therefore, I will not take up your time this morning with a reiteration of points made previously.

Instead, Mr. Chairman, I would like to focus my remarks on legislative proposals made subsequent to the last hearings in October 1979, and specifically, speak to your bill, H.R. 6979, and the Administration's bill, H.R. 6957.

Four points need to be made with regard to H.R. 6979.

First, an overall comment. The general direction of H.R. 6979 marks an important advance in the protecting of natural resources along the Nation's coastline that have national significance and, at the same time, in encouraging growth and development in coastal areas best suited to accomodating people's activites. The ecological value of

the country's coastline has been deteriorating largely because of our inability as a society to determine with any clarity where we wish to encourage growth and what natural resources we wish to protect. NACOA strongly supports this bill as an effort to clarify where coastal development should not occur.

The second point I would like to make relates to Section 4.2 of H.R. 6979. We would certainly agree with the definition of "Coastal Resources of National Significance" as including coastal wetlands, beaches, dunes, barrier islands, reefs, estuaries, and fish and wildlife habitats. That is an important elucidation of the natural resources at the edge of the coast which we must protect to ensure long-lasting marine life.

The third point relates to States that decide not to participate in coastal management. NACOA concluded, as you have, that it makes sense for Federal agencies to conduct their activities with considerable sensitivity to "coastal resources of national significance" that may lie within the boundaries of a State which does not participate in the coastal management program. The Secretary of Commerce is the appropriate authority to promulgate regulations governing Federal activities in a State's coastal zone in the absence of a State program.

Here, too, NACOA regards this as a means of clarifying the ways Federal agencies operate -- in protecting resources of national importance and in promoting economic growth and development along the coast.

My final point with regard to H.R. 6979 concerns the funding of previously unfunded sections of the Coastal Zone Management Act. We have been concerned that many important portions of this legislation have gone for years without funds. Yet we have some reservations about using Section 306 funds for this purpose. NACOA recommended that a State be allowed to convert its coastal energy impact funds to fund research and development projects or even to supplement a 306 grant. Section 306 grant monies alone simply do not offer enough incentives for States to join or continue with the program. Therefore, to suggest that 306 funds might be diverted for use with other sections of the act seems to dilute an already barebones incentive to States.

We realize that these are times of fiscal austerity and that arguing for additional funding is not likely to meet with favor. However, the proposal in H.R. 6979 to divert existing 306 funds seems less preferable to diverting CEIP funds, and we would ask you to think more about this portion of H.R. 6979.

Finally, Mr. Chairman, we have reviewed the Administration's bill only briefly and find it wanting. This bill, H.R. 6956 will not stem the decline of this Nation's important natural resources. I have emphasized on feature of H.R. 6979 -- the clarity it introduces to the purpose of a Federal program for coastal management as that of protecting valuable natural resources: and to the areas where people's activities will be encouraged and discouraged. This clarity should make it easier for those who wish to develop along the coastline and have been

frustrated by vague guidelines. This clarity should also make it easier for those who wish to marshall support for the protection of coastal resources.

This was the concept on which NACOA members with their various interests found agreement and supported the need for clarifying these issues. Clarity will strengthen the Coastal Zone Management Act, and NACOA strongly supports H.R. 6979 and the principles embodied in this proposed legislation.

APPENDIX I

NATIONAL ADVISORY COMMITTEE
ON
OCEANS AND ATMOSPHERE
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

April 24, 1980

Honorable Howard W. Cannon
Chairman, Commerce, Science
& Transportation Committee
U.S. Senate
5202 Dirksen Senate Office Building
Washington, DC 20510

Dear Senator Cannon:

The National Advisory Committee on Oceans and Atmosphere (NACOA) has been asked to comment on the Administration's proposal, now before your Committee, for amendments to the Coastal Zone Management Act of 1972 (CZMA). We testified before your Committee in the past on this subject, and in January of 1979, we submitted recommendations to Congress and the President in a special report, "Coastal Zone Management 1978." Our comments today are based on the recommendations that we made in that report, and we refer you to the report itself for additional details and proposed statutory language.

NACOA has examined the Administration's proposal and found it wanting. We believe that changes to the substantive provisions of the CZMA are necessary. Section 2 of H.R. 6956, the Administration's bill, would amend the "policy" section of the CZMA to add a list of eight, apparently equally-weighted policies to the Act. Among our concerns with this approach is whether this proposed change in the name of "specificity" would actually turn the CZMA more towards coastal development, and "balancing," than the Federal courts have held it to be today. If the object of the Administration's proposal is to create more specificity in State plans, we believe that the changes belong in Section 306 of the Act rather than in the "policy" section, Section 303.

The Administration's second proposal calls for the use of the Section 312 review process as a tool for "jawboning" States into line with what the Federal Office of Coastal Zone Management feels is compliance with its eight proposed purposes. We believe that the CZMA has not produced the kind of State management of coastal resources that Congress originally envisioned in 1972. The substantive provisions of the Act must be amended to provide a higher degree of certainty in the management of the Nation's coastal resources than exists in the State plans that are now being and have been approved.

NACOA's recommendations for amendments to the CZMA proposed a "third phase" of coastal zone management as a follow-on to the existing Section 306 program. The NACOA recommendation is similar in effect to the proposal that was contained in H.R. 6797 as originally introduced by Mr. Studds of Massachusetts. That proposal calls for States participating in the Federal program to identify critical natural resources in their coastal zones that require the maximum possible protection, and to protect them accordingly. Those same States also

would be required to identify areas within their coastal zones where needed development could take place, and to encourage development to be directed into such areas. Where a State is not interested in participating in the third phase of coastal management, both our proposal and Mr. Studds' original bill would have the Secretary of Commerce step in and regulate all Federal activities within the coastal zone of a nonparticipating State. The Secretary would promulgate regulations according to the scheme outlined for the proposed third phase of coastal zone management.

NACOA also recommended that Section 307, the "Federal consistency" Section of the CZMA, be amended to give the States the final decisionmaking authority in determining whether or not a proposed Federal activity is consistent with the State's Coastal Zone Management Plan. This would eliminate the present system where this power is given to the States under some circumstances and to the Federal agencies in other circumstances. Neither the Administration's proposal nor the House bill address this problem, and we strongly urge your Committee to consider such a change.

We welcome this opportunity to make our views known once again to your Committee, and we would be pleased to provide any additional input that you or your staff might require.

Sincerely yours,

Evelyn F. Murphy
Chairman

APPENDIX J

TOWARD A PARTNERSHIP FOR THE DEVELOPMENT OF THE UNITED STATES COMMERCIAL FISHING INDUSTRY

POLICY AND PROGRAM STATEMENT

The White House
May 23, 1979

POLICY STATEMENT

The United States fishing industry makes an important contribution to our economy. It produces food and industrial goods that contribute at least $7 billion to the gross national product. It creates direct employment for more than 260,000 individuals, and produces a major source of food for U.S. consumers.

The Nation's basic fisheries goals are set forth in the Fishery Conservation and Management Act of 1976 -- conservation and management of United States fisheries resources and development of the fishing industry to provide a major source of employment, a significant contribution to the economy, and support to American coastal communities. The Act provided for United States control over all fisheries resources (except tuna) within 200 miles of our coast, and created an opportunity for major industry expansion. For example, the development of six new fisheries off Alaska, the West Coast, the Gulf of Mexico, New England, and the Mid-Atlantic could produce 40,000 new jobs and contribute $1.3 billion to the U.S. economy by 1990, while reducing the U.S. trade deficit by at least $1 billion. Additional benefits would be created by the development of other fisheries.

Achievement of these potential benefits requires an active and innovative partnership among the fishing industry, State and local governments, and the Federal Government. This will require commitments of time and resources from all of the partners.

The widely varying nature of the problems in different areas of the country requires the major work of implementing a national development policy to be done on a regional basis. Federal agencies must be organized for effective interface with State and local governments and the industry in planning and implementing programs. The Administration's fishery development policy and program will provide the framework for regional efforts to produce specific solutions to industry's needs.

In the future, the Federal program will concentrate on the development of non-traditional species, such as bottomfish off Alaska and squid off the east coast, and the expansion of the industry into new areas, such as the Western Pacific tuna fishery. Federal policy will be to foster the development of all sectors

of the U.S. fishing industry -- including fishermen in our 200-mile zone, in the Great Lakes, U.S.-flag distant water fleets, and U.S. processors and distributors -- through a close working relationship with the industry and well-coordinated government programs.

This will involve:

-- providing foreign market access through government negotiations, and through better information on market conditions and trade opportunities, to increase foreign markets and help reduce our massive trade deficit;

-- facilitating industry access to private venture capital for vessels, processing plants and support facilities through changes in existing regulations relating to the conditional fisheries restriction for such access and through a study of possible tax deferral benefits for shore-based facilities;

-- reviewing government regulations applicable to the industry to ensure fair and equitable treatment and an adequate basis for all regulatory actions;

-- conducting research, and providing information to consumers, on the safety and nutritional value of seafoods in the American diet;

-- satisfying the major fishing industry need in some regions for publicly financed infrastructure, such as ports and harbors;

-- adapting existing technology and disseminating technolgical information to allow the industry to modernize and improve its capital facilities; and

-- coordinating Federal agency personnel so that industry can work more effctively with those responsible for implementing government development.

This fisheries development program will enable the fishing industry and State and local governments to utilize better existing Federal government programs for industry assistance and economic development.

In addition, the Administration will propose fisheries development legislation to ensure adequate funding of cooperative efforts between industry and government to solve the remaining development problems preventing the industry from taking full advantage of the opportunities presented by the Fishery Conservation and Management Act. The new legislation will cover FY 81-84 at a funding level slightly above the current level available under the Saltonstall-Kennedy Act. That Act will provide funding for FY 79 and FY 80.

The new legislation will be directed specifically toward development of the U.S. fishing industry and utilization of U.S. fishery resources -- particularly those not traditionally harvested by our industry. The Administration is proposing that these funds be used by the National Oceanic and Atmospheric Administration (NOAA) in coordination with the U.S. industry in accordance with several criteria:

-- most funding would be used for comprehensive proposals for development and utilization of a fishery or group of fisheries in a region (some would be used for more specific development projects);

-- complete analysis of the public and private impediments to development of the fishery or group of fisheries would be required, as well as jointly formulated proposals for solving those impediments through Federal, State, and local government programs and industry efforts, and analysis of the costs and benefits of government involvements;

-- proposals will be required to include provisions for sharing of program costs by industry unless special circumstances (such as complete lack of any industry base in an area) prevent such industry activity; and

-- project proposals would have specific time frames within which Federal Government funding would phase out as commercial feasibility is demonstrated.

TOWARD A PARTNERSHIP FOR THE DEVELOPMENT OF THE UNITED STATES COMMERCIAL FISHING INDUSTRY

PROGRAM STATEMENT

This statement of the specific Federal Government program for national fisheries development will be used as a guide for involved agency personnel to establish, in cooperation with the fishing industry and State and local government, integrated plans for the development of fisheries or groups of fisheries in various regions of the United States.

A. Background

The following facts and conclusions underlie the programs set forth below:

1. An opportunity exists for major expansion of many segments of the U.S. fishing industry.

2. Development of the Nation's fisheries can lead to significant economic benefits.

3. A number of impediments are blocking or slowing major development by the U.S. industry of individual fisheries.

4. Expanded, reoriented, and some new Federal program efforts can be undertaken to assist industry efforts, particularly during the early stages of development of new fisheries.

5. Effective implementation of Federal programs will require improved government coordination to ensure efficient use of resources.

6. Effective implementation of Federal programs will also require close cooperation with the fishing industry.

7. Because of the unique nature of each fishery and the impediments to its development, program planning and implementation should occur primarily

in the region in which the fishery is located.

B. Improving Access to Foreign Markets

1. Considerable progress has been made in the Multilateral Trade Negotiations on lowering tariff barriers to U.S. exports of fish products. The emphasis will now shift to specific bilateral negotiations on nontariff barriers such as import quotas. Leadership will be provided by the Administrator of the National Oceanic and Atmospheric Administration (NOAA) in cooperation with the Department of State, the Industry and Trade Administration (ITA), and the Office of the Special Trade Representative.

2. The Secretary of Commerce will identify fish products as a priority item in the Department's export promotion program. This will provide increased opportunities for industry participation in foreign trade fairs and trade missions.

3. The Executive Branch will provide at least six full-time Fisheries Attaches posted abroad to work exclusively on U.S. fisheries concerns.

4. NOAA and ITA will increase their efforts to provide the domestic fishing industry with information on foreign markets and foreign trade opportunities.

5. NOAA, in cooperation with ITA, will coordinate the fisheries export promotion activities of the Executive Branch, the Regional Commissions, and the States to ensure that full advantage is taken of all foreign trade opportunities.

6. NOAA and ITA will dedicate staff to investigate the extent to which fisheries imports adversely impact the U.S. fishing industry, and ways of mitigating those impacts under existing Federal Government programs.

C. Improving Access to Private Capital

1. The Administration will study the costs, benefits, and need for a shoreside facilities construction fund program, to allow fishery interests to accumulate earnings in a tax deferred account for investment in new shoreside facilities, such as processing plants.

2. The Department of Commerce will propose amendments to the regulations governing "conditional fisheries" to allow the use of the Fishing Vessel Obligation Guarantee Program and the Capital Construction Fund Program for combination vessels which will work primarily rather than exclusively in non-traditional fisheries. Present regulations prevent use of either program for any vessel which will be involved to any extent, no matter how minor, in any fishery which is already heavily capitalized. The proposed regulations would allow vessels using the present fisheries, and thereby have a stable financial base, while taking the risks of entering new,

non-traditional fisheries.

3. NOAA will provide information and analyses of fisheries potential to the public and private financial communities to ensure that they have an adequate basis to make investment decisions regarding non-traditional fisheries.

D. Reviewing Government Regulations

1. NOAA will dedicate staff to implement the President's regulatory reform policy. The staff will work with other agencies, such as the Food and Drug Administration and the Environmental Protection Agency, and with the fishing industry, to ensure that regulatory agencies are aware of those impacts, and to ensure that adequate research is done on both those impacts and the potential benefits of the regulations to the public before regulations are adopted or modified. NOAA will also continue its efforts to streamline the regulatory process required to implement the Fishery Conservation and Management Act.

2. The Department of Commerce will request that the Department of the Treasury undertake a cooperative study to assess whether tax policies are being equitably applied to the fishing industry in comparison with other food-producing industries.

E. Ensuring Product Quality and Safety

1. NOAA will undertake research to determine the nutritional values of various species of seafood, but will leave specific product promotion and market development activity to the fishing industry.

2. NOAA will increase its research on the safety and wholesomeness of seafood, but will limit its research on product quality to projects needed to remove impediments to use of non-traditional species. Safety research will not be limited to non-traditional species, but may also include work such as research on histamines in tuna and use of menhaden oil for human consumption.

3. NOAA will accelerate and complete its work on fish nomenclature to assist the industry and the U.S. consumer. When completed, this work will provide comprehensive information on the edibility characteristics of fish, particularly non-traditional species, so that distributors and consumers can make better use of available fish protein from U.S. domestic fishing efforts.

4. The Department of Commerce will continue its voluntary seafood inspection program on the present reimbursable basis.

F. Development of Infrastructure

The Department of Commerce will coordinate the planning capabilities of

NOAA, the Economic Development Administration, the Regional Commissions, the Maritime Administration, other Federal agencies, State and local governments, and the fishing industry to ensure that infrastructure needs are identified, analyzed, and addressed in regional plans for the development of a fishery or group of fisheries. Regional fisheries development planning committees will include representatives from all Federal, State, and local authorities providing infrastructure funds so that needs and funding sources can be agreed upon in context of such development plans. NOAA will work with the Federal agencies administering infrastructure development programs to ensure that they understand and take into account the needs of the fishing industry in granting funds.

G. Provision of Technology Information

1. NOAA, ITA, the Maritime Administration, the Office of Minority Business Enterprise and the Assistant Secretary for Science and Technology of the Department of Commerce will provide information to the industry on available fishing technology, both domestic and foreign.

2. NOAA and the Assistant Secretary for Science and Technology will continue specific technology development or application projects to remove technological impediments identified in comprehensive regional plans for the development of specific fisheries or groups of fisheries and to adapt existing technologies to the fishing industry.

H. Implementation of Programs

1. Regional committees of personnel from involved Federal Government agencies will be formed to facilitate cooperation among industry and State, local, and Federal Government fisheries development activities. NOAA, with the support of the Department of Commerce's Secretarial Representatives, will provide the leadership in establishing these committees. The committees will perform two functions: ensuring prompt and easy coordination with all affected government agencies in responding to industry requests for assistance; and providing a regional focus for Federal Government participation in the preparation of comprehensive plans for the development of fisheries or groups of fisheries. Each Regional Fishery Management Council will be requested to designate a member of the Council as a contact point to ensure adequate Council participation in development planning and to ensure that the Council is fully aware of development needs in its work to establish management plans for fisheries in the region.

2. Each regional Federal Government committee will work directly with the fishing industry, State and local government representatives, and Regional Commissions in developing a joint plan for development of new fisheries or groups of fisheries. Industry participation will be through a foundation, such as the Gulf and South Atlantic

Foundation, an industry steering committee, or any other mechanism desired by the industry in a particular region. Task teams will be set up with appropriate membership to concentrate on each fishery or group of fisheries.

3. Federal funding of major development proposals will require approval in Washington, D.C. NOAA headquarters will coordinate with other appropriate agenices in Washington, D.C., to ensure that all of the necessary government resources are brought to bear in a timely and effective manner.

4. In addition to the regular involvement of industry representatives on a regional basis, NOAA will coordinate development policy and priorities with the fishing industry on a national level through periodic meetings and briefings.

I. Fisheries Development Legislation

1. The Administration will propose new legislation to provide funds for fisheries utilization and development and to specify criteria and guidelines for use of those funds for FY 81-84. The funding level will be slightly above the level currently available under the Saltonstall-Kennedy Act. That Act will provide funding for FY 79 and FY 80.

2. The funds will be used mainly for comprehensive, well-planned regional projects developed by industry and concerned government agencies.

3. In some cases, the funds may be used for projects outside of the scope of comprehensive development projects. Those cases will be limited to fishery development projects otherwise identified above as appropriate for government activity, such as studies to establish the effects on human health of fish oils prior to their approval for use in the American market.

4. Priority will be given to funds for use in developing species which have not been traditionally harvested or marketed by the U.S. industry, or for development of traditional species in new areas.

5. Project funding decisions will be based on analysis of all major impediments to development, analysis of current industry and Federal, State, and local government plans to remove those impediments, jointly formulated proposals for additional actions needed to remove the impediments, analysis of the costs and benefits of the project, industry sharing of the costs of proposed programs, and proposals for monitoring and analysis of the success or failure of the project.

6. Proposals for use of the funds would be expected to include industry cost-sharing features except in special circumstances, such as the complete lack of an industry base in an area to share costs. The amount of cost-sharing will be determined on a case-by-case basis, based on the nature of the impediments identified and the actions proposed. For example, industry would not be expected to share the costs of port and harbor development normally considered public investment, but would be expected to share heavily in the costs of demonstration projects.

7. The development funds will be phased out of projects in time frames specified in the project proposals. All proposals will be required to identify dates by which the commercial feasibility of a fishery would be proven or not proven, at which time the use of development funds would end.

APPENDIX K

TESTIMONY

Robert M. White*
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittee on Science, Technology and Space
Committee on Commerce, Science
and Transportation

U.S. Senate
96th Congress
Washington, D.C.

April 17, 1980

*These remarks are made in Dr. White's capacity as Director of the Climate Research Board Summer Workshop, July 1979, and as a member of the National Advisory Committee for Oceans and Atmosphere.

Mr. Chairman, members of the Committee, I welcome this opportunity to comment on the Draft Five-Year Plan for the National Climate Program, dated March 1980, prepared by the National Climate Program Office of the National Oceanic and Atmospheric Administration of the Department of Commerce. I had hoped that by this late date a fully approved plan would be available, hence this testimony must necessarily be of a tentative nature pending an approved plan. This plan is required by Public Law 95-367, the National Climate Program Act of 1978, to "establish the goals and priorities of the program, define agencies' roles, funding requirements and expected program achievements."

Prior to the issuance of this Draft Five-Year Plan, the Climate Research Board of the National Academy of Sciences, at the request of the government, reviewed the Preliminary National Climate Program Plan, also called for by the Act, at a summer workshop held in Woods Hole, Massachusetts, in July 1979. A report issued by the Climate Research Board based upon this workshop and entitled "A Strategy for the National Climate Program" appraised the preliminary plan, and offered comments and recommendations which it thought would be of use to the National Climate Program Office in preparing the final Five-Year Plan for the National Climate Program.

I was the director of that Climate Research Board summer workshop. The workshop was attended by over 40 scientists and other specialists from many disciplines, and from universities, industry, government, and other nations to review the preliminary plan. A list of those who participated is included in the report which has been made available to the Committee.

I also appear before you in my capacity as a member of the National Advisory Committee for Oceans and Atmosphere (NACOA). At its meeting in September 1979, NACOA approved a statement by Dr. E. Epstein, Director of the National Climate Program Office, that offered a set of recommendations for revising the preliminary Five Year Climate Program Plan. At its last meeting in March, NACOA considered the Five-Year Plan for the National Climate Program. It wished me to communicate to you its general views on the adequacy of this draft plan as a basis for moving forward with the National Climate Program. With your permission I submit a letter from the Chairman of NACOA to the Administrator of NOAA.

In both capacities, I am pleased to indicate that the draft Five-Year Plan for the National Climate Program serves in most respects as a sound basis for moving ahead with the National Climate Program. It represents a substantial improvement over the preliminary version which was the subject of much debate in the Committees of Congress, and also within the scientific and user community. The National Climate Program Office is to be complimented on the major modifications that have been made.

In the time available I cannot go into very great detail about the plan. It is voluminous and covers a wide range of activities as required by legislation. What I propose is to measure this plan against the major recommendations made by the Climate Research Board.

The plan now sets forth a reasonable strategy for the National Climate Program that is close to that proposed by the Climate Research Board. The Plan now provides for the organizing of the effort so that the Program will provide useful outputs at an early date, while simultaneously expanding the understanding of climate and its relation to society. The priority program areas identified in the Plan also seem to be reasonable.

In addition to recommending a general strategy for the Climate Program, the Climate Research Board undertook a general appraisal of the deficiencies of the preliminary plan. For example, the plan now comes to grips with priorities which were obscured in the preliminary version. While some of the priorities differ from those that were recommended by the Climate Research Board, they are sufficiently close that in our view they are reasonable.

In our appraisal of the preliminary plan, we were concerned about the failure to identify agency responsibilities for carrying out various aspects of the program. Decisions on lead agencies for major program elements have now been indicated. We had expressed concern that the National Climate Program Office did not have adequate standing in NOAA or the Department of Commerce. The changed placement of the National Climate Program Office in the Office of Policy and Planning gives it increased overview of the national effort which it did not have in its previous organizational location.

Our concerns however about the authority or financial capability of the National Climate Program Office to oversee the national effort are not assuaged by this important change. The National Climate Program Office continues to have only the authority of persuasion to discharge its responsibilities. It does not appear to have the funding power that would enable it to work in a more effective way

with other agencies. The participation of other agencies and the budgetary support for various elements of the program still depend upon the priorities assigned to them within the individual agencies.

While the budgetary information available in the section of the plan labeled "Resources and Future Plans" is a significant step forward, it is still sketchy and insufficient to judge its adequacy. I know it is hardly appropriate in this period in which both the Administration and the Congress are seeking to cut the Federal budget for FY 81, to comment on funding problems, but I would be lax if I did not indicate our concerns about the adequacy of the funding.

Examination of the budgetary information illustrates the nature of our concerns. In 1979, the percentage of the total climate program supported by the Department of Energy and the National Aeronautics and Space Administration (NASA) was approximately 20 percent or about $17 million out of $88 million. By 1981, the total program has grown to $135 million. Of the 1981 total, the Department of Energy and NASA together are now responsible for approximately 37 percent of the total effort. During this same period, the figures for the Department of Commerce show only modest increases from $18.2 million to $24.5 million, an increase of $6.3 million. In 1979, the Department of Commerce was responsible for 21 percent of the total effort, but by FY 1981 the Department of Commerce was supporting only 18 percent -- this in the face of the fact that Commerce is charged with the overall lead agency responsibility of the total program. It is hard to see how that kind of increase will be adequate to enable the Department of Commerce to carry out its responsibilities. Similarly the budgeting in the National Science Foundation has increased only $4.5 million over the 2-year period. Yet the National Science Foundation is being asked to take on lead agency responsibility for one of the six major areas of activity, the Program in Ocean Heat Transport and Storage, to which the Climate Research Board gave such importance. This is in addition to the Foundation's responsibilities for supporting a wide spectrum of basic science activities related to the Climate Program.

I do not mean to suggest by these comments that the increases for the Department of Energy or NASA are inappropriate; quite the contrary, they are essential. The Department of Energy with responsiblity for the carbon dioxide/climate problem will need that kind of money to do the job. As we indicated in our report, we thought the Department of Energy was doing an outstanding job in its planning. That continues to this day. Similarly, we placed a very high priority on some of the satellite measurements that would be required, and we are pleased to see that it has been possible for NASA to provide the necessary resources to undertake those tasks. But our pleasure with what has happened in the Department of Energy and NASA is matched by our concern with the inadequacy of funding in the other areas of the program.

In our general appraisal, we felt that because of the centrality of the concept of climate as a worldwide phenomenon, the plan needed to indicate explicity how the United States would approach the problems of international cooperation. We had recommended that a separate section be provided in the Plan to address this question, and this has been done. Some of our recommendations on major international field programs, such as the one on understanding and monitoring the upper layers of the oceans, appear to have been adopted. We believe that this represents a major step forward in the planning.

There is one aspect of the Plan with which we continue to remain dissatisfied. It deals with the importance accorded to the Intergovernmental Climate Program. We feel this is a vitally important part of the program strategy, namely the production of climate information at an early date that can serve to increase the efficiency and reduce the impact of climate variability upon various sectors of our economy. We are pleased that the new Plan does provide for an Intergovernmental Climate Program and along the lines we have recommended; namely, a demonstration program to show the economic benefits that might flow from such an intergovernmental effort. But the resources accorded to this effort in the Plan will be insufficient to carry out a reasonable effort.

In summation, the Plan before you represents a giant step forward in providing a basis for the National Climate Program. Mr. Chairman, I would be glad to answer any questions you may have.

APPENDIX L

TESTIMONY

Sharron Stewart
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittees on Resource Protection and
Environmental Pollution
Committee on Environment and Public Works

U.S. Senate
96th Congress
Washington, D.C.

July 20, 1979

INTRODUCTION

The National Advisory Committee on Oceans and Atmosphere consists of eighteen Presidential appointees representing non-Federal marine and atmospheric interests, including representatives from industry, academia, State and local government, and environmental groups. Our Committee is concerned with the problems associated with the transportation and disposal of oil and hazardous substances, and has followed the progress of this legislation with considerable interest. Last October, we submitted recommendations to you on two related bills then pending in the 95th Congress, S. 2083 and H.R. 6803. Since that time, the Administration has submitted a bill which would combine oil and hazardous substance spill liability and compensation legislation with a scheme for dealing with releases from hazardous waste dump sites on land, S. 1341, and Senator Culver only last week introduced S. 1480, a bill which deals with hazardous wastes alone. These proposals are broad and complex in scope, and there are high-priority issues that should and could be resolved before any such legislation should be passed. We appreciate this opportunity to make our views known directly to the members of your Committee, and we hope that our comments will be of value to you in your deliberations.

COMBINING OIL, HAZARDOUS SUBSTANCES, AND HAZARDOUS WASTE DISPOSAL SITES

We think it reaches too far. Our overriding concern is that the magnitude of the hazardous waste disposal site problem is so great, perhaps one or two orders of magnitude greater than that of oil and hazardous substance spills, that a single managing organization for all three problem areas would be

over-extended. For example, the proposed rulemaking on natural resource damage assessment provides two years to produce the first set of guidelines. In an organization also charged with trying to clean up 2,000 abandoned hazardous waste sites -- literally the sins of the past 40 years -- the business of formulating damage assessment guidelines would take a back seat.

The difference in magnitudes of the oil and hazardous materials problems is evident from the tremendous difference in fees on crude oil and on petrochemical feedstocks, yet the total amounts to be collected from each source annually, at least in S. 1341, differs only by a factor of two. An obvious, and unsatisfactory, conclusion is that the money raised by the fee on oil is intended to assist in financing the cleanup of uncontrolled hazardous waste sites. The two problems are distinctly different and involve different industries. The income and expenses related to oil spills should be segregated from those related to hazardous substance and hazardous waste activities. Furthermore, the management of spill response and compensation should be separate from the management of uncontrolled hazardous waste site activities. We favor a separate oil spill bill, for which we would be prepared to submit more detailed recommendations at a later date. Such a bill should include a fee mechanism that would create a $200 million fund over three years, and should place management responsibility for oil spill liability and compensation with the Secretary of Transportation. The $100 million that would be lost each year from the Administration's proposal by separating oil from hazardous materials could be restored by an increase in the fees collected on chemical feedstocks or by an increase in funds from general appropriations, or by some reasonable combination of both.

Finally, we believe that the ideas contained in recent oil-only legislation have been considered longer, and are much better developed, than those in the Administration's proposal to deal with hazardous waste disposal sites. We see no reason to continue holding an oil spill bill "hostage" in order to get a hazardous wastes bill through Congress. Hazardous wastes legislation still has a long way to go. Over the next several weeks, oil from the Bay of Campeche blowout may well impact the entire Gulf Coast, and could possibly interfere with commercial fishing and recreation for up to three months. If the Superfund bill were passed, persons affected by that spill would have a source of compensation. We believe that Congress should deal with oil and hazardous wastes concurrently, and pass each bill when it is ready. Oil spill legislation is ready now.

THIRD-PARTY DAMAGES

Although we recommend separation of the oil spill problem from spills of hazardous substances and releases from hazardous waste sites, we have a number of recommendations to make in both areas, some of which are common to both oil and hazardous substances, and others which are more specific in nature.

Personal injury

The real tragedy of the "Love Canals" of this country is personal injury, and this is a problem that needs Federal legislation. At a minimum, the legislation should provide injured parties with a Federal cause of action, with a reduction in the burden of proof of causation and relief from State Statutes of Limitation. Congress passed just such a provision in the "Black Lung" law of 1972. A rebuttable presumption of causation is contained in H.R. 3797 and 3798, introduced earlier this year by Mr. LaFalce of New York. The LaFalce bills would allow the Administrator of EPA to use statistical data to find that a cause-effect relationship existed between a particular hazardous substance and a physical injury, and to establish other criteria which would allow a claimant the benefit of a statutory rebuttable presumption that he had in fact been injured by the substance in question.

In addition to providing a legal basis on which injured third parties could make a claim against the party responsibile for improper transportation or disposal of a hazardous substance, this Committee should consider providing at least limited financial relief for injured persons who have no viable party to sue. Such remedies already exist in every State for employees who are injured in the course of their employment, and the limited remedy we suggest here could be patterned after existing Workmen's Compensation laws. While this may prove inadequate in many instances, such a compensation scheme would provide at least some relief to persons whose health and lives have been adversely affected by hazardous substances, without creating a tremendous financial burden on the general public.

Third-party damages from spills of oil or hazardous substances

We support the concept that third parties injured by spills of oil and hazardous substances need a quick and equitable method of obtaining compensation, and believe that a strong Federal law should supplant State laws in this area. For this reason, we suppport the form of limited preemption as it appears in the Administration's proposal, S. 1341, but only as it applies to oil. As it will take some time for the Federal scheme to be established, Congress may wish to consider delaying the effect of such a provision for three years.

On the other hand, we note with concern the Administration's effort to narrow the scope of third-party damages recoverable in spill situations, in Section 607(a) of their proposal, S. 1341. We cannot agree with their decision to delete the provisions found in the Administration's earlier "oil-only" bill, S. 953, which would allow State and local governments to recover lost tax revenue for up to one year after a spill, and allow any U.S. claimant to recover for "loss of use" of natural resources. The substitution of commercial fishermen's claims for the previous, much broader, "loss of use" provision would limit or eliminate claims by beach-front property owners and recreational fishermen, at the least. We recommend that legislation passed by the 96th Congress contain the familiar tax and "loss of use" provisions instead of the limited provision contained in Sec. 607(a)(4) of S. 1341. On

the other hand, we strongly support the provision in Sec. 607(a)(3) of S. 1341 which would allow State and Federal Government claimants for natural resource damages to recover their damage assessment costs as part of a claim. The present situation in the Gulf of Mexico suggests a weakness in the whole "Superfund" concept, and we urge the Congress to reexamine the proposed legislation and make certain that any oil spill Superfund would provide compensation for U.S. citizens injured by spills in waters under the jurisdiction of another State or on the high seas.

In this same area, we wonder about the use of the modifier "economic" as in the first paragraph of Sec. 607(a) of S. 1341. If the phrase "claims for damages for economic loss...resulting form pollution" means that a claimant is to seek compensation in monetary terms, then the word "economic" is redundant. On the other hand, we are concerned that a spiller-defendant in such a situation might interpret the word "economic" as modifying the types of activities for which losses will be recognized; i.e., that only commercial activities result in compensable losses. In view of the two possible interpretations, one of which we believe to be contrary to the intent of Congress, we suggest that the word "economic" be deleted from the phraseology used in Sec. 607(a) of S. 1341 and related bills.

Finally, we share the concern raised in hearings earlier this year on H.R. 85 with respect to the proposed exemption for public vessels. We see no rational basis for this exception, and therefore recommend against it.

DISINCENTIVES TO POLLUTE

While we believe that the compensatory damages that a spiller of oil or hazardous substances would be required to pay should serve as a disincentive, we recommend two modifications of existing law, as well as most of the oil and hazardous substance spill proposals that we have seen, that we believe would significantly enhance the disincentive value of this legislation.

Changing the liability limit standard

Under current law, a spiller has the benefit of a per gross registered ton (grt) liability ceiling on cleanup costs unless the Federal Government can show "willful misconduct or gross negligence within the privity and knowledge of the owner." The word "and" in existing law is probably a mistake in drafting, made back in 1969 when the Water Quality Improvement Act was drafted. The phrase "privity or knowledge of the owner" comes from the 1851 Limitation of Liability Act, and is a deeply imbedded feature of admiralty law.

Furthermore, under the 1851 Limitation of Liability Act, an owner is entitled to limit his liability to the post-accident value of his vessel unless the other party can prove that the vessel was "unseaworthy within the privity or

knowledge of the owner." A tremendous body of case law has grown up around the word "unseaworthy," as it is used in this context, and currently the "unseaworthy" standard is broken in more than half of the cases reported each year. "Gross negligence" and "willful misconduct" can be one-time events, such that the owner cannot be charged with privity or knowledge that such behavior would occur, but "unseaworthiness" is much more likely to be traceable to the owner.

In our view, the limitation of liability provided by language such as that in Sec. 604(c)(1) of S. 1341, "except when...caused...by willful misconduct or gross negligence, within the privity or knowledge of the owner," is overly lenient, and in its place we recommend language such as:

> Except when the pollution or threat thereof is caused in whole or in part by willful misconduct, gross negligence, or unseaworthiness, within the privity or knowledge of the owner...

This change would be particularly effective in cases of spills from river-borne barges where the relatively low liability limits of $150 per grt, and even $300 per grt in some cases, simply do not come close to the costs of cleaning up such spills.

Changing the civil penalty provision

Existing law, as well as the Administration's proposed S. 1341, provides for only a $5,000 civil penalty for spilling oil, but a $50,000 civil penalty for spilling a hazardous substance, increasing to a maximum of $250,000 if the spiller's liability ceiling is broken. We recommend that the same five-to-one multiple be incorporated into the oil spill civil penalty provision, increasing the maximum penalty to $25,000 if the spiller's liability limit is broken. We also recommend that the spiller's prior record of oil spills be added to the list of factors considered by the Coast Guard or the Secretary in assessing the proper amount of any civil penalty.

Providing funds for State programs to stop oil pollution

We feel that it is desirable to encourage or further support active State programs designed to promote oil spill prevention awareness at local levels that would be difficult for the Federal Government to reach. Such programs in the areas of industrial accidents, highway safety, and fire prevention have had a record of success in the past. We therefore urge that up to ten million dollars from the oil spill fund be set aside annually to support such programs, to be administered by the States after approval by the Secretary of Transportation. Such programs could include, for example, local inspections, training and public information programs, waste oil disposal facilities, and the like. We believe that such an effort could well result in an overall reduction in the number of oil spills, and is certainly worth the relatively minor financial commitment involved.

NATURAL RESOURCE DAMAGE

A rulemaking process

We have always supported, and we continue to strongly support, a provision in this legislation that would mandate natural resource damage assessment procedures to be developed in a rulemaking process. Absent such procedures, we believe that it will be practically impossible for States and the Federal Government to recover damages for injured or destroyed natural resources in the majority of spills. We believe that a provision such as that offered last year by Senator Chafee, which eventually became Section 5(e) of S. 2083, is essential. In addition to the rulemaking process itself, we believe that the directed research provision, Section 5(a)(9) of the 95th Congress' S. 2083, also offered by Senator Chafee, is a valuable complement to this process. By including these two provisions in oil and hazardous substance compensation legislation at this time, we believe that the natural resource damage provision could become the single most important disincentive to pollute in this bill.

Use of recovered moneys

NACOA agrees with industry and environmental groups that funds recovered by States and the Federal Government for damages to natural resources should be used solely for purposes of restoring the injured ecosystem, or to restore or protect an equivalent ecosystem where the injured system cannot be restored. Otherwise stated, we oppose language such as that found in Section 607(b)(3) of S. 1341; i.e., "Compensation paid under this item shall be used only for assessing the damages to and the restoration of the natural resources damaged," as creating an unintentional "cap" on recovery. For example, destruction of 10 percent of a year-class of cod on Georges' Bank, something quite possible if a blowout akin to the Bay of Campeche blowout were to occur on Georges Bank at the beginning of the winter, should result in a compensable loss under Section 607(a)(3). However, the fact that destroyed cod eggs could not be replaced at any cost might allow the spiller to avoid paying a penny for damages to natural resources. Furthermore, language permitting the use of such funds "for acquisition of equivalent resources" is vague, and could be construed at one extreme to preclude all expenditures, or at the other extreme, to permit the use of such funds for the construction of roads, or for any other purpose. Neither extreme is desirable, and we recommend that language similar to that of last year's Seante bill, S. 2803, be incorporated into any provision like Sec. 607(b)(3) of S. 1341. We recommend that the last line of Sec. 607(b)(3) be modified to read:

> ...or to restore or protect equivalent resources. The measure of damages under this item shall not be limited by the sums that may be used to replace or restore such resources.

If the natural resource damage provision proves as effective as we believe it should be, States and the Federal Government should be allowed to accumulate the many small recoveries they receive in a trust fund, until sufficient funds are on hand to carry out recovery projects in a cost-effective manner.

Citizens' suit provision

For a variety of reasons, some States may well not make claims for damages to natural resources, for example, due to a lack of personnel or political pressures. Even in the State of Florida, which has one of the best oil and hazardous substance spill laws in the Nation, the State does not file natural resource damage claims as allowed under its statute. For this reason, NACOA believes that a citizens' suit provision should accompany the natural resource damage provision. Similar in nature to a shareholder's derivative suit, a citizen of a State, or of the United States in cases of natural resources where the Federal Government is the trustee, should be able to bring, at his own expense and with notice to the Government's chief legal officer, a claim against the spiller or the fund for damages to natural resources. With the damage assessment rules in place, such a claim would not be beyond the means of an ordinary citizen. Moneys recovered by citizens' suits should go to the State or Federal government, or to the fund, and the citizen claimant should be able to collect his costs and attorneys' fees from the government. By allowing the court to award costs and attorneys' fees to either side, this provision should prevent frivolous suits.

PERMANENT REMEDIES TO HAZARDOUS WASTE DISPOSAL PROBLEMS

We are concerned with the cost-cutting approach taken by the Administration in its proposal, S. 1341, for "containment" of hazardous waste sites. The notion of a "least-cost" solution to such a serious long-term problem is something that we fear could be misused, an we recommend that the legislation call for the "least-cost, but most effective long-term" alternative in dealing with an uncontrolled hazardous waste site. We cannot support the theory that 20 years of containment is the ideal, or even the logical solution to such a problem. Federal legislation in this area should not be restricted to "containment," but should require the Administrator and the States to seek permanent solutions to the problems of releases of wastes into the environment. It is of little value to repackage all of the wastes at a site in steel drums that will last 20 years and a day, although thay may be the "least-cost containment" option.

NACOA also believes that the Administration's proposal cuts corners in too many other ways. The heavy reliance on State financial participation is misplaced. States, even less than the Federal Government, do not have the wherewithal to pay their share of the costs, as the Administration would require. Some States would be faced with the need to create State funds, perhaps by a fee on petrochemical feedstocks just like the Federal fee. Competition between States would be heightened, as industries would threaten to move to a more hospitable State. In response to such threats of economic dislocation, many States might make the political decision not to assess such fees, and the whole process of cleaning up hazardous waste sites could be stymied. If there were ever a need for a uniform Federal law in an area, and a strong Federal presence, this is it.

APPENDIX M

TESTIMONY

Sharron Stewart
National Advisory Committee on Oceans and Atmosphere

before the

Committee on Merchant Marine and Fisheries
and
Committee on Public Works and Transportation

U.S. House of Representatives
96th Congress
Corpus Christi, Texas

September 9, 1979

Mr. Chairman and Members of the Committee:

I am pleased to appear before you today on behalf of the National Advisory Committee on Oceans and Atmosphere (NACOA), and to present our Committee's views of the IXTOC I oil spill. NACOA is an 18-member, Presidentially appointed body of individuals from the non-Federal sector whose legislative mandate is to advise the President and Congress on selected ocean, coastal zone, and atmospheric issues. Our membership includes representatives from industry, academia, State and local government, and the environmental community. The testimony we present today represents a consensus of the views of NACOA's members. We hope that these views will prove helpful both to the members of your Committee and to the Executive Branch agencies with responsibilities for dealing with oil spills.

The IXTOC I spill is a continuing event, and the impact that it will have on the U.S. coast is far from known. The intent of our testimony today is to highlight three major problem areas in our Nation's approach to oil spills, in the hope that Congressional and Administration attention can be focussed on arriving at whatever solutions are necessary, whether they involve technology or policy.

The three areas, which we will address in turn are: (1) the status of today's high-seas containment and cleanup technology, (2) the questions that arise from the observation that the IXTOC I oil has become widely distributed in the water column, with the potential for adverse impacts on the benthos, and (3) the need to assess the impacts of this spill on the natural resources of the Gulf Coast.

HIGH-SEAS CONTAINMENT AND CLEANUP TECHNOLOGY

A dominant impression that one gets from reports from the scene of the blowout in the Bay of Campeche is that the cleanup equipment which has been deployed onscene has not done an adequate job of containing or recovering the oil. A recent issue of the Oil Spill Intelligence Report, however, indicated that equipment provided by the National Strike Force in early August is in place and recovering 7 barrels per minute.

Because of continuing pressure on the Federal Government to lease offshore Atlantic and Alaskan areas, and to allow the siting of additional refineries on the East Coast, it is important that we make some determination of the relative efficacy of the equipment that was deployed at IXTOC I. Where failures occured, we need to know why. Rather than assume the worst, and hampering OCS development for years to come, we recommend a thorough investigation of the entire operation in the Bay of Campeche, in an attempt to understand the deficiencies and high points in existing high-seas oil spill cleanup technology.

Specifically, we are interested in learning whether it was a failure of equipment, or a lack of adequate local logistics, that was responsible for any failure to contain the oil. The role of the weather onscene is another area of concern, as a variety of statements have been made recently, particularly in the Georges Bank Lease Sale Environmental Impact Statement (EIS), and the EIS for the proposed Pittston refinery, to the effect that modern oil spill containment and cleanup technology is capable of dealing with oil spills in sea states up to several feet. At IXTOC I, for at least some portion of the time since the blowout, the seas have been calm, and yet the fraction of oil that was recovered even under the most favorable conditions has been reported to be minimal.

To the extent that the cleanup technology employed by PEMEX is the same as that on which the United States would have to rely in the event of a major spill off our own coasts, we are concerned that events of IXTOC I may indicate a need for changes in the direction of ongoing research and development programs in this area, and possibly major changes in our containment and cleanup philosophy.

OIL IN THE WATER COLUMN

As the IXTOC I oil approached the United States' Gulf Coast on August 5, 1979, a University of Texas research vessel, the Longhorn, discovered particles of oil in the water column as deep as 40 feet. Shortly after that, on August 7, the Longhorn reported additional findings of oil in the water column at other stations, thus confirming the earlier observation. Although it is difficult to estimate the quantities of oil present below the surface, as compared to that on the surface, the amounts reported by observers on the Longhorn could mean that a major proportion of IXTOC oil entering United States' waters is coming in subsurface.

Let me touch briefly on the meaning of this observation. The IXTOC I oil is a

light crude, and it is a fact that only a tiny fraction, perhaps less than two percent, of the world's commercially-produced oils, have a "residue" with a density greater than seawater. The phenomenon which is responsible for the sinking of IXTOC I oil is not only one of simple evaporation, as one might immediately suspect, rather, NOAA scientists suspect that it is a more widespread phenomenon that is somehow associated with the "skinning" effect that takes place when almost any crude or residual fuel is exposed to natural weathering processes at sea. If this is so, then the observation that the IXTOC oil is going subsurface is not likely to represent a single situation; in fact, it may well represent the general rule.

We are concerned about the ultimate fate of petroleum hydrocarbons that are spilled into the marine environment, and particularly their impact on bottom-dwelling and bottom-feeding organisms, such as shrimp. While much of the concern about IXTOC oil has focussed on its "toxicity," there is another, much more insidious, cause for concern when we talk about the fate of petroleum residues. These materials are known to contain polynuclear aromatic (PNA) components which are known to be convertible into carcinogenic compounds in humans. There has long been a concern that the presence of small amounts of these components in shellfish or other food species is reason to keep them from the marketplace. In fact, there are still shellfish beds in Massachusetts that were closed, for this very reason, after a spill in 1969, that remain closed today.

If the IXTOC oil is reaching the bottom sediments of the Gulf of Mexico in significant quantities, that in itself is cause for concern. If this phenomenon is the rule, rather than the exception, as it very well may be, then it is time to address ourselves to another, very real area of concern. It is simply impossible to conceive of the present resources of the Coast Guard and EPA being stretched so far as to be able to clean up every oil spill observed at sea, and we are not suggesting that such an approach is necessary. What we do wish to see addressed is the whole question allowing the benthos to become a reservoir of the residues of oil spills. We do not know the extent to which such contamination is taking place now, under the present procedures for dealing with oil spills, nor do we know whether the concentrations that result from allowing oil spills to break up and sink are significant in terms of potential human impact. The IXTOC I spill, however, if studied completely and with this question in mind, should go a long way towards resolving these issues.

If it turns out that our present practices are inadequate, then both Congress and Federal agencies will have to face squarely a need for a change in direction, and most likely an increased demand for personnel and financial resources. We only ask that these issues be a part of the long-term analysis of the effects of the IXTOC spill, and that the question of whether or not oil spills should be cleaned up at sea, as close to their source as possible, be considered as part of a reexamination of the U.S. policy in dealing with oil spills.

ASSESSING THE IMPACTS OF THE IXTOC I OIL SPILL

For two years now, as part of the continuing dialogue over the various proposals for an oil spill "Superfund," NACOA has urged that the problem of assessing damages to natural resources be addressed in the legislation itself, rather than be left to the designs and limited resources of State and Federal agencies alone. The Senate, in their last bill in the 95th Congress, adopted definitive language that would have required that such assessments be made, and provided for the resources and guidelines with which such assessments would be carried out. So far the House has not seen fit to adopt similar language, although both NACOA and other public witnesses urged such language on this Committee during hearings on H.R. 85 earlier this year. In the context of this discussion of IXTOC I, we once again urge that such language be added to any version of any oil, or oil and hazardous substances, "Superfund," passed by the House of Representatives. The specific language that we support can be found in our testimony on H.R. 85 before Mr. Biaggi's Subcommittee.

Addressing ourselves to the present situation, NACOA is concerned that once the oil spill is gone from the surface of the sea, it may well disappear from our memories. We have been following with interest the development of the "Damage Assessment Plan" by NOAA and EPA, which we understand will require between $5 million and $17 million, over the next two or three fiscal years. Simply because of the potential impact on shrimp alone, both in the shelf sediments and in their nursery grounds across the Texas coastline, we strongly support such an endeavor. We hope that the Federal agencies involved in this exercise will develop a framework for conducting future assessments, and that they do everything possible to plan a coordinated program.

NACOA urges the Federal agencies involved in assessing the impacts of the IXTOC I oil spill first agree on the economic model that will be used to convert measurable "impacts" into some form of economic injury, or "damages," before embarking on individual ventures in the field. Surely, enough is known about potential impacts for this to be done a priori, rather than after the fact.

NACOA also urges this Committee to support a major Administration initiative to measure the impacts of this spill, both on natural resources and on the economics of affected Gulf Coast States. This study should provide invaluable information for use in decisions that will have to be made in the next several years, both in legislating and administrating various energy-related programs.

Mr. Chairman, the members of NACOA are vitally interested in the outcome of these hearings. To the extent that it appears fruitful, we will continue to provide our advice on the Nation's approach to oil spills both to the Committees of the Congress and the Federal agencies.

This concludes our testimony, Mr. Chairman.

APPENDIX N

TESTIMONY

Michael R. Naess
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittee on Water Resources
Committee on Public Works and Transportation

U.S. House of Representatives
96th Congress
Washington, D.C.

September 26, 1979

INTRODUCTION

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear before you today on behalf of the National Advisory Committee on Oceans and Atmosphere (NACOA) and to present our views on proposed oil spill liability and compensation legislation. NACOA is an 18-member, Presidentally appointed body of individuals from the non-Federal sector, including representatives from industry, academia, State and local governments, and the environmental community. Our enabling statute calls for NACOA to report to the President and Congress on selected oceanic, atmospheric, and coastal zone issues. The statement I make here today represents the consensus veiwpoint of our entire Committee. We are greatly concerned with problems associated with the production and transportation of oil in the marine environment, and we appreciate this opportunity to express our views on the legislation currently before your Subcommittee.

On March 14, 1979, NACOA testified before the Subcommittee on Coast Guard and Navigation on the two bills then pending before the Committee on Merchant Marine and Fisheries, H.R. 29 and H.R. 85. Intervening events, particularly the blowout of the Mexican Offshore oil well IXTOC I, have reemphasized the need for such legislation. However, we agree with the statement recently attributed to a member of your Subcommittee, Congressman Breaux of Louisiana, that the chances for passage of an oil-only "Superfund" bill this year are slim (Environment Reporter, Sept. 14, 1979, p. 1166). In that same context, we have reexamined our previously stated position on oil spill legislation, and my testimony today reflects our latest view of the situation. The new ideas which we are introducing today should not be interpreted to mean that NACOA has in any way reduced its support for the Superfund concept. Rather, we have become convinced that existing law can accomplish at least some of the

purposes contained in the Superfund bill, and urge administrative progress in that direction while the Superfund debate continues. Our testimony today includes both our recommmendations for strengthening H.R. 85 and a call for greater use of existing authority by the Administration.

NATURAL RESOURCE DAMAGES

NACOA believes that compensation for natural resource damages is fundamental to the Superfund concept. However, it is our opinion that authority already exists in Federal law for States and the Federal Government to recover for such damages caused by spills of oil and hazardous substances, and to recover directly from the §311(k) revolving fund whenever such damages exceed the spiller's liability limit. Since the Clean Water Act of 1977 became law, new paragraphs (f)(4) and (5) of §311 give to the President and the authorized representatives of State governments the authority to seek compensation, either from the spiller or from the §311(k) fund, for natural resource damages resulting from spills of oil and hazardous substances. The $35 million revolving fund established by §311(k) of the Clean Water Act is available to pay all costs incurred under §311(c). Subsection 311(c) authorizes the President to incur costs for "removal" of oil or hazardous substances. When the Clean Water Act of 1977 was passed, new §311 (f)(4) expanded the definition of "costs of removal" to include costs of restoring or replacing damaged natural resources. Thus, the "costs of removal" authorized by §311(c), and chargeable to the §311(k) fund, includes at the very least the replacement costs of any natural resources damaged by a spill. As it would be impossible to undertake to replace damaged natural resources without an estimation of the nature and extent of the damage, the administrative costs of assessing such damages would be compensable as part of such a claim.

Some have argued that §311(f)(4) and (5) merely created a right of action between governments and the spiller. They take the position that placement of the new paragraphs (f)(4) and (5) in the liability subsection, §311(f), does not make the §311(k) fund liable for natural resource damages when they exceed the spiller's liability limit, or when there is no spiller to sue. We submit that this is not so. It would not have been necessary for Congress to codify an already well-established right of sovereigns to recover as parens patriae for damages to natural resources caused by pollution, something which as well established in case law and reinforced in such recent cases as Maine v. M/T Tamano, 357 F.Supp. 1097 (D.Me. 1973), and Maryland v. Amerada Hess Corp., 350 F.Supp. 1060 (D.Md. 1972).

Compare the Administration's response to new §311(f)(5) to that stimulated by the passage of Title III of the Outer Continental Shelf Lands Act Amendments of 1978 (OCSLAA). Title III of OCSLAA includes a provision for recovering natural resource damages which is similar to §311(f)(5), and essentially duplicates §103(b)(3) of the bill before this Subcommittee, H.R. 85. After OCSLAA became law, the President delegated his duties as trustee of natural resources under that Act to the Secretaries of Commerce and Interior in Executive Order 12123 on February 26, 1979. This means to us that the Administration is prepared to exercise this authority under OSCLAA, which we believe to be proper. A similar delegation of duties should be made for the authority

provided in §311(f)(5) of the Clean Water Act. NACOA believes that the time to exercise this authority has come, and strongly urges the Federal agencies with natural resource management responsibilities to initiate a vigorous program of seeking compensation for damages to natural resources from spills in oil and hazardous substances.

In summary, we think that the authority to make natural resource damage claims already exists, and we believe that if these claims were vigorously pursued, they would serve as a significant deterrent to the spilling of oil or hazardous substances into our Nation's waters. Where those damages exceed the spiller's liability, or where there may be no spiller over which the United States has jurisdiction, as in the present Bay of Campeche spill, the States and the Federal Government can and should act to restore damaged natural resources using §311(k) funds to the extent available. The exercise of this authority could cause a significant drain on the appropriated fund created by §311(k), which would make more evident the need for new legislation implementing the Superfund concept.

DISINCENTIVES TO POLLUTE

Although compensatory damages imposed upon a spiller of oil or hazardous substances, by a scheme like that in H.R. 85 or in the Administration's recent "Ultrafund" proposal, may serve to some extent as a discentive against operating practices likely to result in pollution, we think that more disincentives can and should be provided. When a lost day of vessel time is worth tens of thousands of dollars to an owner or operator, the possibility of facing a maximum $5,000 fine, or even paying cleanup costs, could simply become a factor in an economic tradeoff process. We would like to make three recommendations, which could be implemented either as modifications to existing law or as amendments to H.R. 85 and which we believe would provide stronger disincentives to pollute. These three proposals are: (1) changing the liability limit standard from "willful misconduct or gross negligence" to include "unseaworthiness," (2) changing the civil penalty provision for spilling oil by increasing the maximum penalty if the spiller's liability limit is broken, and (3) adding a citizens' suit provision to the natural resource damage provision.

Changing the Liability Limit Standard

Under §311(f) of the Clean Water Act, a spiller has the benefit of a per gross registered ton (grt) liability ceiling on cleanup costs and natural resource damages unless the Federal Government can show "willful misconduct or gross negligence within the privity and knowledge of the owner." The phrase "privity or knowledge of the owner" comes from the 1851 Limitation of Liability Act, and is a deeply imbedded feature of admiralty law. Under the 1851 Act, an owner is entitled to limit his liability to the post-accident value of his vessel unless the other party can prove that the vessel was "unseaworthy within the privity or knowledge of the owner." A large body of case law has grown up around the word "unseaworthy," as it is used in this context, and it has become a meaningful standard where more than simple negligence causes an accident. "Gross negligence" and "willful misconduct" can be one-time events, such that the owner would not be charged with privity or knowledge that such behavior would occur, but "unseaworthiness" is more likely to be traceable to the owner.

In our view, the limitation of liability provided by language such as that contained in §1049b) of H.R. 85,

> ... except when the incident is caused primarily by willful misconduct or gross negligence, within the privity or knowledge of the owner or operator ...

would continue the impossible standard of "willful misconduct or gross negligence" that is contained in existing law. In its place, we recommend language as follows:

> ... except when the incident is caused primarily by willful misconduct, gross negligence, or unseaworthiness, within the privity or knowledge of the owner ....

Such a change in the language of H.R. 85, or as an amendment to the language of §311(f)(1) of the Clean Water Act, would be particularly effective in cases of spills from river-borne barges where the relatively low liability limits of $150 per grt as set out in H.R. 85, and even $300 per grt in the case of ocean-going barges, simply do not come close to the cost of cleaning up such spills.

Changing the Civil Penalty Provision

Existing §311(b)(6) of the Clean Water Act imposes up to a $5,000 civil penalty for spilling oil, but up to a $50,000 civil penalty for spilling a hazardous substance, which increases to a maximum of $250,000 if the hazardous substance spiller's liability ceiling is broken. Subsection 111(a) of H.R. 85 would increase the §311(b)(6) maximum penalty for oil spills to $10,000, but even that falls short of what is needed. We recommend that the same five-to-one multiplier be incorporated into the oil spill civil penalty provision that is found in the hazardous substance civil penalty provision of §311, increasing the maximum penalty to $25,000 if the spiller's liability limit is broken under present law, or to $50,000 if the liability limit were to be broken under H.R. 85. We also urge that the spiller's prior record of oil spills be added to the list of factors to be considered by the Coast Guard in assessing the proper amount of any civil penalty under either existing law or H.R. 85.

Adding a Citizens' Suit Provision

For a variety of reasons, the Federal Government and some States may well choose not to make claims for damages to natural resources, either under §311(f) of the Clean Water Act or under §103 of H.R. 85, either because of lack of personnel or political pressures. Even in the State of Florida, which has one of the strongest oil spill laws in this country, the State government does not file natural resource damage claims as allowed under its own statute. We recommend that a citizens' suit provision accompany the natural resource damage claim provision in §311(f) or in H.R. 85. Similar in nature to a shareholder's derivative suit, a citizen of a State, or of the United States in cases where the Federal Government is the trustee, should be able to bring, at his own expense and with notice to the Federal Government's chief legal officer, a claim against the spiller or either the §311(k) fund or Superfund for damages to natural resources. Monies recovered by citizens'

suits should go to the State or Federal Government, and the citizen claimants should be able to collect their costs and attorneys' fees from the award. By allowing the court to award costs and attorneys' fees to either side, frivolous suits should be discouraged.

NATURAL RESOURCE DAMAGE ASSESSMENT GUIDELINES

A system of compensating governmental entities for injuries to natural resources held in the public trust could go a long way toward restoring valuable habitats and living resource populations, and in shifting the burden of these losses from coastal populations to the energy-using public at large. To meet these objectives, we believe that the proposed Superfund legislation must set out clearly, and in sufficient detail, the procedures which will be employed to assess damages to natural resources.

Without such procedures, it will be practically impossible for States and the Federal Government to recover damages for injured or destroyed natural resources in the majority of spills. From 1972 through 1976, an average of 12,291 oil spills were reported in the United States per year. Subtracting the 2,588 "mystery" spills that occurred each year, for which there are no reported quantities, only 1.3 percent (126 per year) of the spills which were reported each year exceeded 10,000 gallons. Although it is remotely conceivable that affected States and the Federal Government might be able to assess the injuries sustained by natural resources in those 126 "medium" and "major" spills each year, it is completely inconceivable that damages in the 9,577 spills that occur each year could be demonstrated on a case-by-case basis.

When the Argo Merchant broke up in 1976, the Federal Government spent over $500,000 for field and laboratory work associated with the spill. Despite this expenditure, the evidence gathered fell far short of what would be required in order to prove adequately a natural resource damage claim under H.R. 85. The minimum cost of putting one scientist in the field, taking one photograph and one water sample, analyzing the water sample and preparing a three-page report, is about $500. Because there is ample reason for trying to assess natural resource damage in all cases, consideration needs to be given to the methodologies for carrying out these assessments.

NACOA recommends that the Federal agencies with management responsibilities for natural resources be given a mandate to develop a standardized approach for assessing damages to natural resources. Workshops and discussions with industry and government scientists lead us to believe that a rulemaking process should be carried out which would establish two types of damage assessment procedures. One would be simplified assessment procedures requiring a minimum of field work, including establishing measures of damage based upon units of discharge or affected area and the type of oil and ecosystem involved. Such procedures would be applicable to minor spills. The second procedure would establish damage assessment protocols to be used when the extent of damage is obviously great, and extensive field work becomes necessary. We also support a statutory rebuttable presumption

in favor of any claimant or spiller who is willing to accept or pay damages upon the regulations.

The rulemaking process that NACOA recommends should be carried out jointly by EPA, the Fish and Wildlife Service, and NOAA, in cooperation with State governments. The process should consider all of the scientific information gathered to date on the effects of oil pollution on natural ecosystems, the ability of various ecosystems to recover, and so on. This would focus scientific debate concerning natural resource damages in the rulemaking process, and would result in the best procedures for making defensible and, on the average, accurate assessments of oil spill damages. Furthermore, this approach would minimize the administrative costs associated with assessing and adjudicating damage claims, while still allowing natural resource damages to be recovered down to the smallest practicable spill volume. In order to ensure that the regulations take into consideration the most up-to-date scientific information, we urge that the regulations adopted under this authority be updated every two years, with ample opportunity for public participation in the rulemaking process, through the use of hearings and regional workshops, as an integral part of the regulatory process.

To this end, we urge the Subcommittee to adopt language similar to that introduced by Senator Chafee during markup of S. 2083 last year, as set out below:

Proposed Amendment to H.R. 85

> Sec. 107(m)(1)(A) The President, acting through the Administrator of the National Oceanic and Atmospheric Administration, the Administrator of the Environmental Protection Agency, and the Director of the Fish and Wildlife Service, not later than two years after the enactment of this Act, shall promulgate regulations for the assessment of damages for injury to, destruction of, or loss of natural resources resulting from a discharge of oil for the purpose of Section 103(a)(4) of this Act, or Sections 311(f)(4) and (5) of the Federal Water Pollution Control Act.
>
> (B) Such regulations shall specify (i) standard procedures for simplified assessments requiring minimal field observations, including establishing measures of damages based on units of discharge or affected area, and (ii) alternative protocols for conducting assessments in individual cases to determine the type and extent of short- and long-term injury, destruction, or loss. Such regulations shall identify the best available procedures to determine such damages, and shall take into consideration factors including, but not limited to, replacement value, use value, and ability of the ecosystem or resource to recover.
>
> (C) Such regulations shall be reviewed and revised as appropriate every two years.
>
> (2) In accordance with such regulations, damages for injury to, destruction of, or loss of natural resources resulting from a discharge of oil, for the purposes of Section 103(a)(4) of this Act or Sections 311(f)(4)

and (5) of the Federal Water Pollution Control Act, shall be assessed by (A) the Director of the Fish and Wildlife Service for living natural resources and their supporting ecosystems over which such Service has management or conservation authority, (B) the Administrator of the National Oceanic and Atmospheric Administration for other natural resources in the marine environment beyond the baseline of the territorial sea, and (C) the Administrator of the Environmental Protection Agency for all other natural resources. Such Officials shall act for the President as trustee under Section 103(b)(3) of this Act and Section 311(f)(5) of the Federal Water Pollution Control Act.

Any determination or assessment of damages for injury to, destruction of, or loss of natural resources, for the purposes of Section 103(a)(4) of this Act or Sections 311(f)(4) and (5) of the Federal Water Pollution Control Act, based upon final regulations adopted pursuant to this subsection, shall have the force and effect of a rebuttable presumption on behalf of any party (including a trustee under Section 103(b)(3) of this Act or a Federal Agency) in any judical or adjudicatory administrative proceeding under this Act or Section 311 of the Federal Water Pollution Control Act.

In addition, we support language which would clarify the right of a claimant to recover reasonable damage assessment costs as part of a natural resource damage claim. We also support a directed research provision which would authorize the President to allocate up to $10 million per year from the Fund for research into damage assessment methodology, "effects" research, and research on minimizing the damage caused by oil spill control and cleanup operations. We would caution that responsibilities for carrying out and selecting such research projects should be assigned to those officials who are charged with the development of oil spill damage assessment methodology. Finally, we note that the definition of "natural resources" added to H.R. 85 (Section 101(z) may have inadvertently omitted non-living natural resources from the compensation scheme. Because beaches and other non-living natural resources are intended to be covered by this legislation, we would recommend a change in the wording of 101(z) to read "<u>other living and non-living natural resources,</u>" rather than "other such resources."

NACOA believes that the language stating that "the measure of [natural resource] damages shall not be limited by the sums which can be used to restore or replace such resources," would significantly enhance the language in Section 103(b)(3) of H.R. 85. A limitation on such recovery would act to frustrate the purpose of the law by denying the States and the Federal Government the right to recover from irreparable damages to natural resources, such as offshore fisheries, coral reefs, or endangered species. We believe that a domestic oil spill liability and compensation law should effectively inhibit discharges of oil not only into nearshore waters but into offshore waters as well. To preclude recovery by States and the Federal Government where irreplaceable resources have been injured or destroyed would ony serve to take away some of the deterrents that the oil pollution liability scheme is intended to create. Even if the compensation funds

received by States and the Federal Government cannot be used to "restore or acquire the equivalent of" damaged natural resources, NACOA believes that such damages, where provable, should be internalized and made part of the cost of transporting oil. To assure that such damages do not go uncompensated because of the sheer impossibility of restoring or replacing irreplaceable natural resources, §103(b) H.R. 85 should be modified to read:

> Provided, that compensation paid under this item shall be used, to the maximum extent possible, for restoration of the damaged resources or for acquisition of equivalent resources. The measure of damages under this time shall not be limited by the sums which can be used to restore or replace such resources.

PREEMPTION AND HAZARDOUS SUBSTANCES

No issues have received more attention in the Superfund debate than the two questions of: (1) preempting State laws, and (2) including hazardous substances and abandoned hazardous waste sites in the Superfund scheme. NACOA's position on preemption is firmly in favor of preempting State oil and hazardous substance spill laws to the extent that they duplicate the liability and compensation provisions of the Superfund. This would not preempt States from collecting fees on oil and hazardous substances to accomplish purposes which are not covered by a Superfund law.

On the question of combining oil with hazardous substances and abandoned hazardous waste disposal sites, we think the Administration's recent "Ultrafund" proposal, H.R. 4566, reaches too far. Our concern is that magnitude of the abandoned hazardous waste site problem is so great, perhaps one or two orders of magnitude greater than that of oil and hazardous substances spills, that a single managing organization for all three problem areas would be over-extended. We believe that the management of spill response and compensation should be separate from the management of abandoned hazardous waste sites. We favor a separate oil spill bill which would place management responsibilities for oil spill liability and compensation with the Secretary of Transportation. We believe that the ideas contained in oil-only legislation have been considered longer, and are much better developed, than those in the Administration's proposal to deal with abandoned hazardous waste disposal sites. We believe that Congress should deal with oil and hazardous wastes separately but concurrently, and pass each when it is ready. Oil spill legislation, in our opinion, is nearly ready now.

This concludes our testimony, Mr. Chairman.

APPENDIX O

ORAL STATEMENT

of

Michael Naess
National Advisory Committee on Oceans and Atmosphere (NACOA)

before the

Subcommittee on Water Resources
Committee on Public Works and Transportation

U.S. House of Representatives
96th Congress
Washington, D.C.

September 26, 1979

Mr. Naess. Distinguished members, good evening. It has been a long day, and you must be getting tired; I know I am just from listening. So, I will indeed cut this very short.

NACOA, for those of you who have not had any contact with it, is what its name would imply. It is an advisory committee composed of 18 members appointed by the President, charged to advise both the Executive Branch and Congress on matters relating to the oceans, coastal affairs, and atmospheric affairs.

Within our ranks we have a high degree of diversity. We have members representing the academic community, industry, State and local governments, and the environmental community. We also have several members who wear multiple hats. We also have geographic diversity. We are spread all the way, in terms of where we come from, from Alaska to Boston. We even have a couple of representatives from the State of Texas, one from Louisiana, and, believe it or not, we have a couple of Republicans within our ranks.

Since I am speaking on behalf of NACOA primarily I will use the "we" when I am sure that what I say is NACOA's position. But, if you have questions for me and I am forced to express a personal opinion, I will shift to the "I." In that context, it might be helpful for you to know that I am a businessman when I do not have my NACOA hat on. Within NACOA I purport to represent, most of the time at least, the industrial point of view.

You have received the written testimony. I will not plod through it verbatim, nor will I even attempt to summarize it chronologically since that would mean a page-

flipping exercise. More importantly, as I reviewed that testimony coming up on the plane last night, it occurred to me that we might have a problem. It is a scholarly, conscientious effort to present a balanced position. In fact, it is so scholarly and so balanced that it may in fact have obscured the position.

Mr. Breaux. Do you want to go right to the questions?

Mr. Naess. I will be right there.

So, my verbal presentation has the purpose here of unobscuring the position and making it quite clear, because on this issue NACOA is not on the fence.

We have already testified twice this year in support of oil spill liability legislation. We continue to support it. But in the form of H.R. 85 we fear it will just take too long to happen.

Our written testimony identifies as another option the possibility of amending Section 311 of the Clean Water Act to achieve the same purposes. I would now like to stress that this approach is NACOA's firm recommendation.

In amending Section 311, we suggest that you amalgamate the best elements of each of the other alternatives currently under consideration as follows:

One, expand Subsection 311(k) by picking up the concept of the feedstock fee from H.R. 85, to supplement but not replace the appropriated revolving fund.

We would suggest that the appropriated layer be increased, and in fact be the first $50 million, and that the fee income be collected until the fund reaches $200 million over the course of 2 or 3 years.

In passing, I might mention that, as an economist and as a businessman, I do not agree that a one-time 2-percent maximum levy on feedstock cost would produce a multiplier effect. What counts in the oil business and in the chemical business at the end of the day is not margin as a percent of sales; it is rate of return on investment. That one-time fee passed all the way down the line by everybody, and passed on to the consumer in the form of price, would not change in any way the rate of return on investment.

Two, borrow, from H.R. 85 and from the Roberts-Breaux-de la Garza bill, H.R. 5338, the provision for payment of third-party damages. This is in addition to the existing Section 311 provision for cleanup costs, natural resource damage assessment costs, and, of course, natural resource damages.

Note that I have included, as compensable under existing law, that one can collect natural resource damages as well as damage assessment costs. That is NACOA's opinion. It is our Counsel's opinion, and it also happens to be good, solid logic. To provide otherwise is to say that somehow one must pay for or restore damaged resources without first assessing the damage. That is nonsense and would be tantamount to going about the business of repairing a damaged house by calling in the carpenters and turning them loose on the shutters without walking around the house to see where the damage lies.

Three, pick up from H.R. 85 the concept that the amended Section 311 would be the exclusive remedy for all damage claims. That is, to the extent that duplication as to either purpose or coverage might exist between the expanded Section 311 fund and any separate State or regional fund, Section 311 would preempt.

One final point. NACOA believes that you should avoid the temptation to turn a Section 311 Superfund into an H.R. 4566 type of Ultrafund.

We recognize that the problem of abandoned hazardous waste sites is indeed a severe one, and it deserves attention. But we think it deserves separate attention. Life, just dealing with current spills of oil and hazardous substances, is already complicated enough.

In conclusion, oil spill liability legislation has been sputtering like a cold engine for a long time. It is time, in our opinion, to stop philosophizing and over optimizing and get on with it.

Thank you very much.

APPENDIX P

NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

March 25, 1980

Honorable Neil E. Goldschmidt
Secretary of Transportation
NASSIF Building
400 Seventh St., SW.
Washington, DC 20590

Dear Mr. Secretary:

In April 1979, the National Advisory Committee on Oceans and Atmosphere (NACOA) testified on H.R. 85, the "Superfund" bill, before Congressman Biaggi's Subcommittee on Coast Guard and Navigation. NACOA recommended that inland tank barges should not be accorded special treatment in limiting their liability for cleanup costs and third-party damages. H.R. 85 provides for lower limits of liability for inland tank barges than it does for oceangoing barges and tank vessels, $150 per gross registered ton (grt) for the former compared to $300 per grt for the latter. As you know, our position also was included in NACOA's Eighth Annual Report.

In our comments, we suggested that, because of the restricted nature of the waters where inland tank barges operate, the cleanup cost and natural resource damages caused per gallon of oil spilled is generally higher for tank barges than it is for tank vessels, which usually operate in less-confined waters. Furthermore, we believe that the costs of cleaning up barge spills are more likely to exceed any grt-based liability limit for a barge than for a tank vessel.

We understand that the U.S. Coast Guard (USCG) is now reexamining the statistical basis of this problem, and that a contract was recently let to the National Academy of Sciences (NAS) for a closer look at barge-related pollution issues. We strongly support these recent moves by the Department of Transportation (DOT).

Over the past several months, NACOA has continued to examine this area. The following summary of our information is provided for your information and for use by the USCG/NAS study team. As of April 1979, there had been four Federal court holdings "against" the United States in barge spills and one "for." The single District Court judge who had ruled in favor of the United States has now reversed himself, and, with the addition of another decision, there are now six barge spill cases in which the United States is unable to recover its entire cost of cleanup. By "against the United States," NACOA refers to judicial interpretation of the Clean Water Act which holds that Section 311(f) of that Act is the United States' sole remedy for the recovery for oil spill cleanup costs, and since December 28, 1977, for natural resource

damages as well. Under the present holdings, U.S. taxpayers are now paying most of the costs of cleaning up oil spills from barges. Table 1 summarizes the six cases. In 1976, the single spill from the vessel ARGO MERCHANT accounted for 32 percent of all the oil spilled "in and around U.S. waters" that year. Deleting the ARGO MERCHANT spill from the U.S. Coast Guard's 1976 report, one finds that all other tank vessels were responsible for only 9.1 percent of the total oil spilled that year, while tank barges were responsible for 8.8 percent.

Table 2 summarizes the vessel-related spill data from 1971 through 1978. From 1971 through 1975, tank barges caused 42.6 percent of vessel- and barge-related pollution, while tank vessels were responsible for 40.8 percent. Deleting the ARGO MERCHANT spill from the 1976 figures does not change the ratio significantly. The United States spent about $1.6 million in its response, yet the ARGO MERCHANT, at 18,743 grt, would have been liable for $1,874,300 in cleanup costs under Section 311. Deleting the ARGO MERCHANT and HAWAIIAN PATRIOT spills from the data for 1971 to 1978 puts the ratio of barge- to vessel-related oil spills at 1.4 to 1.

Barges do cause a large fraction of oil pollution in and around U.S. waters, and the cost of cleanup of a barge spill has, at least in six cases, exceeded the liability limits under existing law for the spiller. With the exception of the 1978 Chesapeake Bay spill, all of the liability limits in Table 1 were based on $100 per grt, as Section 311(f) read prior to the 1977 amendments. Under most proposed Superfund bills, this limit would be raised to $150 per grt for inland barges and $300 per grt for tank vessels and oceangoing barges. Table 1 shows that even tripling the middle column ($300 per grt) would result in a recovery of only 30 to 40 percent for the United States in these six spills, with nothing available for paying natural resource damage claims of the United States. For this reason, tank barges should be subject to at least the same limits of liability per grt as tank vessels.

NACOA agrees with DOT that the purpose of Superfund is "to provide compensation, not to drive small operators out of business." We also believe that another major purpose of Superfund legislation must be to reduce the amount of oil spilled into U.S. waters. The legislation should therefore include disincentives to pollute as one objective. A continuation of the present treatment of barge spill liability limits will not act as a disincentive to pollute and will not allow adequate recovery of costs to the Federal Government.

We appreciate this opportunity to work with DOT in resolving this issue of national interest and importance.

Sincerely,

Evelyn F. Murphy
Chairman

Table 1.-- Cleanup costs recoverable by the United States in barge spills

Incident	Cleanup Costs Incurred	Liability Limit of Spiller	Percentage Recoverable
	----------Dollars----------		
1976 Chesapeake Bay[1]	480,705	122,300	25
1978 Chesapeake Bay[2]	600,000	190,000	32
1974 Dixie Carriers[3]	954,404	121,600	13
1975 Valley Towing[4]	1,098,670	357,600[5]	33
1976 NEPCO 140[6]	9,000,000	847,800	9
1975 BIG SAM[7]	278,648	15,500[8]	6
Totals	12,412,427	1,654,800	13

Deficit: $10,757,627

(Sources: all court decisions to date)

1 Complaint of Steuart Trans. Co., 435 F. Supp. 798 (E.D. Va. 1977), aff'd., 596 F.2d 609 (4th Cir. 1979).

2 In re Allied Towing Corp., 13 ERC 1875 (E.D. Va., October 10, 1979).

3 U.S. v. Dixie Carriers Inc., 462 F. Supp. 1126 (E.D. La. 1978), appeal pending (5th Cir., No. 79-3043).

4 Valley Towing Service, Inc. v. S.S. AMERICAN WHEAT, Civ. No. 75-363 (E.D. La., Dec 21, 1978).

5 The reason for the "high" liability limit ($357,600) is that the District Court allowed the United States to combine the gross registered tonnage of two barges, both of which had discharged oil. The liability limits of the two barges were $182,800 and $174,800 respectively.

6 In re Oswego Barge Corp., Civ. No. 76-CV-269 (N.D.N.Y., Nov. 13, 1978). (NEPCO 140 is an ocean - certificated barge.)

Continued

7 U.S. v. M/V BIG SAM, 454 F. Supp. 1144 (E.D. La. 1978), rev'd by the same court, ____ F.Supp. _____ (Civ. No. 78-86, Nov. 30, 1979).

8 The reason for the low ($15,500) liability limit is that BIG SAM is a third-party tug that was solely responsible under §311(h) for the spill from the barge BUTANE. If T/B BUTANE's tonnage had been the basis for liability, the recovery would have been $132,400, in line with the other incidents.

Table 2.-- Oil Spills from Tank Vessels and Barges Compared

Year	Volume spilled from all vessels	Volume spilled from tank vessels		Volume spilled from tank barges	
	----------Gallons----------		Percent	Gallons	Percent
1971	3,902,265	1,665,264	42.7	1,197,819	30.7
1972	6,503,298	2,583,952	39.7	3,739,144	57.5
1973	7,919,439	4,494,254	56.7	1,572,059	19.9
1974	4,286,438	1,434,168	33.5	2,468,724	57.6
1975	6,671,639	1,769,333	26.5	3,497,337	52.4
(1976)[1]	(10,600,407)[1]	(8,924,675)[1]	(84.2)[1]	(1,370,909)	(12.9)
1976[2]	3,100,407[2]	1,424,675[2]	45.6[2]	1,370,909	44.2
1977	2,431,798	207,429	8.5	1,844,059	75.8
1978	4,461,993	329,017	7.4	3,634,897	81.5
Totals	39,277,277[2]	13,908,092[2]	35.4[2]	19,324,948	49.2

(Source: U.S. Coast Guard Pollution Incident Reporting System (PIRS) Reports)

[1] Including 7.5 million gallons spilled from the ARGO MERCHANT.

[2] Excluding the ARGO MERCHANT spill.

APPENDIX Q

NATIONAL SCIENCE FOUNDATION
WASHINGTON, D.C. 20550

OFFICE OF THE DIRECTOR

May 15, 1980

Ms. Evelyn F. Murphy
Chairman
National Advisory Committee on
Oceans and Atmosphere
3300 Whitehaven Street, N. W.
Washington, D. C. 20235

Dear Chairman Murphy:

Thank you very much for your letter of May 6. It is gratifying to me to know that NACOA believes as strongly as I do in the importance of basic research in the atmospheric, ocean, and earth sciences. There is no doubt in my mind that there are many difficult and serious questions that will have to be answered in the coming years. The solutions lie in an expanded program of basic research, a program that will be costly and demanding.

Unfortunately I cannot be sanguine about the near-term possibilities for expanded efforts in the physical sciences. For some time now the level of effort in basic research being supported by the Foundation's programs has been falling behind the rate of inflation. As the cost of fuel rises rapidly, costs also rise sharply for ocean sciences in particular and to a somewhat lesser extent in the atmospheric sciences, but output in terms of research results does not rise. It has been made quite clear to me that there will not be any supplemental funding to offset the rising cost of fuel; we shall simply have to make up the shortfall using existing funds at the expense of research support dollars.

It is also clear to me that the Administration and the Congress are very serious about balancing the budget. Since a major fraction of the annual expenditures are fixed cost items that cannot be encroached upon, there remain only those programs, like the NSF, that can be reduced. I expect that we will see these reductions for two or three years hence. Thereafter I hope for improvement. In the meantime we here at the NSF will make the best compromises we can to maintain research productivity. We will also continue our long range planning so that when the budget picture improves we will be in a position to accelerate our efforts to make up for time lost.

Ms. Evelyn F. Murphy

I feel that the current situation calls for patience and forebearance. We will, of course, continue to submit expansive budgets and to defend them with all of the skill that can be mustered.

Again I thank you and the members of NACOA for sharing your views with me. I shall see to it that they are passed to my successor once he or she has been identified. I will also be looking forward to NACOA's assessment of the future needs in the ocean and atmospheric sciences.

Sincerely yours,

Richard C. Atkinson
Director

Copy to: Dr. Frank Press, OSTP
Dr. Norman Hackerman,
Chairman, NSB

APPENDIX R

NATIONAL ADVISORY COMMITTEE ON OCEANS AND ATMOSPHERE
3300 Whitehaven Street, N.W.
Washington, D.C. 20235

November 20, 1979

Honorable Gerry Studds
Chairman, Oceanography Subcommittee
House Merchant Marine and Fisheries Committee
1501 Longworth House Office Building
Washington, DC 20515

Dear Mr. Studds:

In response to a request from Rich Norling of your staff earlier this year, NACOA has been examining several problems related to ocean dumping in the United States. At the beginning of our analysis, we anticipated making a response to you around mid-November. Our investigation is taking us further into the issues than originally anticipated, so we have decided to give you this interim progress report now, to be followed by an indepth analysis of the issues by NACOA next year.

There are four issues that we believe deserve attention, including: (1) the difference in criteria for discharging dredged materials into waters inside the baseline of the territorial sea as compared to discharging the same material into ocean waters beyond the baseline, (2) the ban on sewage sludge dumping after 1981, (3) a ban on the dumping of industrial wastes after 1981, as in H.R. 2519, and (4) the baseline studies on dredged materials currently being conducted by the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers.

On the first of these issues, we should have little difficulty in reaching a recommendation. Because of overlap between the Ocean Dumping Act and the Clean Water Act, differences that have developed in the two regulatory programs are not difficult to explain. They are, however, difficult to justify. Our analysis of these two sets of regulations would be premature at this time, because EPA is in the midst of repromulgating the §404 guidelines for dredged material disposal in inland waters, and that rulemaking process will not be over until early next year. Therefore, we will report to Congress after the rulemaking process has reached its normal conclusion.

To look at the problem of waste disposal only from the perspective of protecting the receiving media, and to treat each medium independently, is a mistake. There probably are situations in which ocean disposal of certain municipal sewage sludges or industrial wastes is the least environmentally damaging

alternative. To simply ban the use of the ocean as a disposal medium, rather than to weigh the environmental impacts of air, land, and ocean disposal on a case-by-case basis, is to be unreasonably wedded to the notion that ocean disposal is necessarily the most environmentally damaging alternative. We do not support an outright ban of ocean dumping of either all municipal sewage sludge or all industrial wastes at this time. Our Ocean Dumping Panel is carrying on a continuous investigation of this issue, including discussions with distinguished ocean scientists, and this will be the basis of our report to you next year. In the meantime, because of our concern over the inadvisability of a flat ban on industrial waste disposal in the ocean, we would ask that language be included in the Conference Report, if a Conference takes place, or in floor debate language if no Conference takes place, that would clarify the word "harmful" as it applies to industrial wastes in H.R. 2519. The Administrator of EPA should be required to find that a less environmentally damaging alternative exists before denying an ocean dumping permit for the disposal of industrial wastes.

We will continue to inform you and your staff of our progress on these issues as we work towards our final recommendations. Our staff will be in touch with your office to arrange an appointment in the near future to discuss these rather controversial issues.

Sincerely,

John A. Knauss, Chairperson
Ocean Dumping Panel, NACOA

Evelyn F. Murphy
Chairperson, NACOA

APPENDIX S

TESTIMONY

Louis J. Battan
National Advisory Committee on Oceans and Atmosphere

before the

Subcommittee on Science, Technology and Space
Committee on Commerce, Science, and Transportation

U.S. Senate
96th Congress
Washington, D.C.

October 24, 1979

I am Louis J. Battan, member of the National Advisory Committee on Oceans and Atmosphere (NACOA) and Director of the Institute of Atmospheric Physics at the University of Arizona. I also am former Chairman of the Committee on Atmospheric Sciences of the National Academy of Sciences and former President of the American Meteorological Society. My testimony concerning S.1644, the Weather Modification Management Act of 1979, and S.829, the Weather Resources Management Act of 1979, is as a member of NACOA.

GENERAL COMMENTS ON WEATHER MODIFICATION

A major objective of weather modification research over the past three decades has been to develop cloud-seeding technology for increasing precipitation. Such a technology would help to meet the growing water demands of agriculture, industry, and urban centers. Throughout history the problem of inadequate water supplies has plagued the Great Plains and the southwestern part of the United States; however, in recent years, even the more humid regions of the central and eastern sections of the country have been experiencing major water resource management and conservation problems, almost on an annual basis. It is essential to investigate all techniques for augmenting the Nation's water supplies. Cloud seeding has the potential to increase valuable water supplies at little expense to the Nation. Advances over the past decade encourage us to believe that an effective technology for increasing rain and snow is within reach.

Weather Modification by Design

About three decades ago, both V. Schaefer in 1946 and B. Vonnegut in 1947 demonstrated that supercooled clouds, that is, those clouds composed of

water droplets having temperatures below 0°C, can be altered dramatically by introducing into them small pellets of dry ice or finely divided silver iodide. These seeding materials convert a supercooled cloud to ice crystals and snowflakes that grow and fall out of the cloud. This sequence of events can be explained theoretically and has been repeated often enough that it is no longer in doubt. Supercooled fogs over airports are regularly cleared by seeding them with ice-crystal-producing substances.

It is tempting to extrapolate the results just noted to conclude that if thin supercooled clouds can be caused to produce falling ice crystals and snowflakes, the same could be done with thick clouds to yield substantial quantities of rain and snow over many regions of the United States. Unfortunately, such a result has not yet been demonstrated to the satisfaction of most atmospheric scientists.

Nevertheless, farmers and power companies in many countries facing severe losses from water shortages or threats of hail to crops have been using the services of private cloud-seeding companies. A measure of the willingness to gamble on the likely success of cloud seeding to obtain additional water is indicated by the fact that in 1977 cloud-seeding was done over about 7 percent of the land area in the United States. Regrettably, in the absence of adequate experimental controls, it is not possible to assess the actual effects of cloud seeding programs.

Many governmental and private groups have surveyed the state of weather modification research and application. A distinguished Weather Modification Advisory Board, chaired by Harlan Cleveland, produced the most recent study, "The Management of Weather Resources, Volumes I and II."[1] This study of the status of weather modification and its potential in the United States was legislated by an interested Congress and signed into law in October 1976 as the National Weather Modification Policy Act of 1976 (Public Law 94-990). The purpose of this Act was, inter alia : "To develop a comprehensive and coordinated national weather modification policy and a national program of weather modification research and development..." The Act called upon the Secretary of Commerce to conduct a comprehensive study and review of the economic, funding, international, regulatory, scientific, social, and technical characteristics of weather modification.

As was the case with earlier reports by the Committee on Atmospheric Sciences[2] and the Board on Agriculture and Renewable Resources[3] of the National Academy of Sciences, this new analysis by the Weather Modification Advisory Board supported the following general conclusions:

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1 Published in 1978 by the Superintendent of Documents, Washington, D.C.

2 Weather and Climate Modification: Problems and Progress, 1973. National Academy of Sciences, Washington, D.C.

3 Climate and Food, 1976. National Academy of Sciences, Washington, D.C.

1. Supercooled clouds and fogs can be cleared by seeding them with ice-crystal nuclei, such as dry ice and silver iodide.

2. Evidence indicates that in some special circumstances precipitation can be substantially increased, or in differenct circumstances, decreased, by means of ice-nuclei seeding. In most circumstances, the results of cloud seeding on precipitation are unpredictable. A reliable precipitation modification technology does not yet exist, but the prospects are good for developing one that is effective in certain areas of the United States.

3. Soviet scientists claim that they have developed cost-effective hail reduction technologies; however, independent tests do not verify those claims. Furthermore, hailstorm research in the United States and elsewhere raises serious doubts about the effectiveness of the Soviet seeding techniques. Nevertheless, it appears to be plausible physically to develop a hail suppression technology.

4. Some evidence suggests that it might be possible to reduce the peak wind speeds in hurricanes, but the evidence is weak in character and small in quantity.

The report by the Weather Modification Advisory Board noted the opportunities and potential benefits of effective weather modification technologies. It also recognized the scientific and societal problems and difficulties. As did earlier reports by groups organized by the National Academy of Sciences, the Board called for a major long-range, national commitment to the development and application of effective weather modification procedures. Specifically, the report of the Board states that: "The aim . . . of the national program of action should therefore be to achieve a comprehensive understanding of those combinations of cloud-environment conditions and seeding methods that lead to useful weather changes in a reliable and predictable manner." The National Advisory Committee on Oceans and Atmosphere (NACOA) endorses this approach toward the development of a weather modification technology and recognizes that it requires well-conceived, theoretical, laboratory and field investigations carried out over many years. This will necessitate a joint effort by cloud physicists, cloud dynamicists, mesoscale dynamicists, statisticians, ecologists, and social scientists.

There are various reasons why there has not been greater progress in the development of a weather modification technology. The primary reason, in the view of many atmospheric scientists, is an inadequate understanding of the nature of clouds and precipitation systems.

The second major reason is that there has yet to be, in the United States, a carefully designed and executed seeding project conducted over a sufficiently long period of time to demonstrate conclusively that cloud seeding can increase precipitation by economically significant amounts.

The highly variable nature of precipitation makes it difficult to identify seeding effects that are relatively small. To obtain conclusive statistical results for any seeding program, experimental bias must be minimized by incorporating a randomization procedure for deciding which clouds or cloud systems are to be seeded. This randomization requirement demands that a seeding program be carried out over a period long enough to accumulate sufficient data to allow meaningful analyses.

Another major impediment to progress that has influenced all the others has been the prevalence of inadequate and short-term funding. The report of the Weather Modification Advisory Board states: "We are tackling 20-year problems with 5-year projects staffed by short-term contracts and funded by 1-year appropriations. It is not good enough."

Recommendations

The Committee urges that the U.S. Government adopt a comprehensive, national weather modification policy and a national program of weather modification research and development. Scientific and technical developments of the recent past lead us to conclude that an economically feasible weather modification technology can be developed. New doppler radar and satellite techniques, coupled with more conventional observational methods and further developments in three-dimensional cloud and mesoscale models, offer promising opportunities for advancing our fundamental understanding and for facilitating the conduct of conclusive cloud-seeding experiments.

In pursuing the scientific aspects of such a national program, the Committee offers the following recommendations:

There should be major continuing programs of fundamental research on natural mechanisms of cloud and precipitation formation.

Until more is known about natural processes, experimental cloud-seeding programs will have to be based on limited knowledge and the likelihood of success will not be optimum. By means of experimental and theoretical studies, much more needs to be learned about ice-crystal formation in natural and seeded clouds. It is essential to develop a better understanding of the interactions of clouds and their environments, with particular concern on how these interactions affect cloud and precipitation development.

To achieve precipitation modification and severe storm mitigation technologies at an early date, carefully designed, randomized cloud-seeding programs should be conducted in different climatological areas of the United States.

Available scientific and statistical evidence supports the hypothesis that ice-nuclei seeding of winter storms over the mountains of the western United States could increase snowfall by 10 to 30 percent. This hypothesis must be tested conclusively by means of a cloud-seeding program that incorporates sound physical and statistical concepts in its design, execution, and analysis.

Research over the past two decades strongly suggests that rainfall can be increased from summer convective clouds of the type so crucial for agriculture. At least two major cloud-seeding research projects can be justified at this time. One project would deal with summer convective clouds over the humid eastern or midwestern regions of the United States. A second project should concentrate on convective clouds over the drier Great Plains.

Every cloud-seeding experiment should be viewed as a research program having two major objectives:

1. An experiment for testing one or more scientific weather modification hypotheses.

2. An observational and experimental investigation for learning about the fundamental nature of cloud and precipitation formation processes.

Before engaging in a major hailstorm seeding program, more needs to be known about natural storms and hail-formation process to formulate a feasible seeding hypothesis.

There should be continuing studies on the societal impacts of an effective weather modification technology. This includes analyses of the environmental impacts of weather modification operations. Over the past three decades, weather modification programs have raised a variety of legal and economic issues that have not yet been resolved. Some of them are international in nature. For example, procedures must be developed to resolve conflicts that can arise when attempts are made to modify storms, such as hurricanes, that can affect more than one nation. In addition, the use of weather modification techniques for hostile purposes needs to be understood better and controlled.

Federal Organization for Weather Modification

The Weather Modification Advisory Board recommended that a semiautonomous body be established within the National Oceanic and Atmospheric Administration (NOAA) that was charged with major responsibility and authority for carrying out a national weather modification program. All Federal activity, except basic research responsibilities assigned to the National Science Foundation (NSF), would be transferred to a proposed National Weather Resources Management Program within NOAA.

A 1973 report of the Committee on Atmospheric Sciences of the National Academy of Sciences had recommended that NOAA be assigned lead-agency responsibility for Federal programs in weather modification.

These recommendations seem appropriate, because weather modification problems are mostly meteorological in nature, and NOAA is the Federal agency broadly charged with dealing with meteorological matters.

Unfortunately, NOAA has not pursued with conviction, vigor, and effectiveness, a national program in weather modification research, development, and management. The Weather Modification Advisory Board issued its report in July 1978. We anticipated that the Secretary of Commerce would issue shortly thereafter, a report to the President and Congress leading to the introduction of legislation prescribing a national policy and plan for weather modification activities; this has not happened yet.

We note that most of the weather modification community believes that at this time it would not be in the national interest to assign to NOAA principal responsibility for the development and management of a national program in weather modification. NACOA shares this view.

We conclude that the best course of action, at this time, is to maintain existing weather modification research programs in NOAA, the Bureau of Reclamation, the National Aeronautics and Space Administration (NASA), and the National Science Foundation (NSF); however, we must establish a stronger planning and coordination mechanism and substantially increase the funding to a level that is more nearly commensurate with the needs.

To deal with the national interests rather than those of a particular agency, planning and coordination should be at the level of the Office of Science and Technology Policy (OSTP) and should include representatives from government, universities, and the private sector in developing plans.

The principal participating agencies in the National Weather Modification Program would continue to be NOAA, the Bureau of Reclamation, NASA, and NSF. Because of the widely recognized fact that progress in the development of an effective weather modification technology depends strongly on the development of greater understanding of the fundamental nature of clouds and precipitation, it is particularly important that NSF play a major role in this program. Its budget for weather modification activities needs to be increased substantially. NSF should, in particular, play a major role in the OSTP planning and coordination of the national program.

SPECIFIC COMMENTS ON S.1644 (Sen. Stevenson's Bill)

Sec. 2: Findings

We agree with these findings, but have some reservations about how this Act proposes to regulate weather modification activities. The discussion of Section 6 addresses this matter.

Sec. 3: Policy

We concur with the provisions for a national weather modification policy outlined in Section 3, but recommend that there be an additional provision:

(1) Weather modification techniques will be used for peaceful purposes and for advancing human welfare in the United States and all other nations.

The purpose of this statement is to emphasize that the United States, as a matter of policy, does not intend to use weather modification techniques as weapons of war. To ensure the peaceful use of weather modification, the General Assembly of the United Nations adopted and opened for signature on May 18, 1977, the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques. At that time, the United States and 33 other nations signed the document; the U.S. Senate has not yet ratified it.

Sec. 4: Purposes

We agree with the purposes of this Act, but have reservations about Item (2) that deals with the licensing of weather modification activities. The discussion of Section 6 addresses this point.

Sec. 5: Definitions

The definitions given in this Section are satisfactory.

Sec. 6: National Weather Modification Management Program

Because NOAA is the Federal agency charged with the responsibility of dealing with weather and climate research, development, and application, it is reasonable to look to NOAA for leadership in a national weather modification program. Unfortunately, NOAA has not supplied that leadership. Over the past 15 months, since the publication of the final report of the Weather Modification Advisory Board in July 1978, NOAA has not shown that it wishes to pursue aggressively an effective program of weather modification research, development, and application.

It would not be in the national interest, at this time, to assign to NOAA or any other agency the primary responsibility for managing a national weather modification program unless that agency demonstrates a conviction of the worth of the program, competence to do the job, and readiness to work aggressively to make the program succeed.

We do not believe that any Federal agency has shown that it meets these criteria for designation as a lead agency for weather modification. For this reason, NACOA recommends that no agency be so designated. Instead, we recommend a National Weather Modification Coordinating Committee be established under the overall responsibility of the Office of Science and Technology Policy (OSTP) to plan and coordinate the activities of those agencies currently involved in weather modification activities. This includes NOAA, Bureau of Reclamation, NASA, and NSF. For an effective weather modification technology to be developed, we need a greater understanding of the fundamental nature of clouds and precipitation. NSF should play a major role in the planning and coordination of a national program, which will require a substantial increase in its budget for weather modification activities.

The Weather Modification Coordinating Committee could take on a structure and responsibilities somewhat similar to those specified for the

Weather Modification Advisory Council noted in Section 6, Paragraph (d) (3) and described in Section 7, except that the Committee would report to OSTP rather than the Secretary of Commerce.

We believe that such an arrangement falls short of the optimum, i.e., a well-funded, highly qualified, and highly motivated lead agency. At the same time, we are convinced that our proposal is the most practical one at this time and should inject those ingredients needed to stimulate progress. It should be regarded as a temporary measure subject to review after a few years. In the long term, as the program progresses, the lead agency concept can be instituted.

Sec. 6(b): Program Elements

We concur with the list of program elements except for Item (7) that deals with licensing.

Sec. 6(c): Director and 6(d): Duties and Sec. 7: Weather Modification Advisory Council

If it is decided to follow the recommendations made under our comments to Sec. 6(a), Sections 6(c), 6(d), Section 7 of the Act would no longer apply.

Sec. 8: Licenses for Weather Modification Operations

Because weather modification is mostly in the research and experimental stage, we believe it is premature to establish "a system for licensing all individuals having responsibility to design or perform any weather modification activity . . ." We believe the costs involved in licensing all such individuals would exceed the benefits.

Undoubtedly, there are a few "meteorological quacks" peddling worthless weather modification schemes, but this alone is inadequate to justify an elaborate, all-encompassing Federal licensing program. In view of the undeveloped state of the relevant science and technology and the uncertainty of the results of cloud seeding, the licensing provisions would have to be loose. We suspect that most weather modification activities conducted in the United States over the past few years have been carried out by individuals who would qualify for a Federal license.

It would appear, in view of the very substantial uncertainties about the effects of cloud seeding, that the Federal Government should not establish a licensing program until some widely accepted, significant weather modification techniques have been developed. Individual States could be allowed to adopt licensing systems if they are deemed necessary.

Notwithstanding our belief that Federal licensing would be premature, we are convinced that steps must be taken to protect federally funded scientific experiments from interference introduced by other nearby weather modification experiments or operations. Some observers suggest that this

could be done by requiring Federal permits for all weather modification activities. The resulting criteria, rules, procedures, and enforcement provisions would probably lead to excessive restrictions and impediments at a time when we need innovation, experimentation, and free enterprise. It would appear to be more reasonable at this time to continue to require the reporting and publication of the place, time, intent, and other details of all weather modification activities before the start of any project, so that an existing or planned experimental program can be stopped before it can cause unreasonable interference.

Sec. 9: Reporting of Weather Modification Activities

We believe that the Secretary of Commerce should continue to be responsible for maintaining a record of weather modification activities and for publishing an annual summary in the manner prescribed in Section 9.

To deal with the problem we discussed under Section 8, the person primarily responsibile for a weather modification activity should be required to report and publish, at least 10 days in advance of any attempts to modify the weather, the information listed under Sec. 9(c), except that 9(c)(1) should be the scheduled dates of the initiation and conclusion of the proposed seeding activity. We believe that such a reporting requirement is currently in effect.

Prior publications of planned activity would allow individuals and organizations that believe the planned activity would be detrimental to seek injunctive or other relief measures.

Sec. 10: Biennial Report

We favor such a report but if our suggestions under Section 6(a) are accepted, the Office of Science and Technology Policy would prepare and submit it.

Sec. 11: Contract and Grant Authority

The intents of this Section are satisfactory, but the applications would depend on the organizational structure of the national weather modification program.

Sec. 12: Administrative Provisions

If our suggestions under Section 6(a) are accepted, there would be no transfer of these responsibilities to the Secretary of Commerce.

Sec. 13: Miscellaneous Provisions

The intents of Sections 13(a) and 13(b) are satisfactory, but the applications would depend on the organizational structure of the national weather modification program.

Sections 13(c) and 13(d) are reasonable ones if this Bill is enacted.

Sec. 14: Authorizations of Appropriations

We believe the funding authorized in this section is reasonable and adequate to carry out a successful program of research and development. We believe that, at this time, the greatest impediment to progress of weather modification is not organizational in nature, but rather is attributable to inadequate and unstable funding, particularly for basic research and field experimentation. A long-term Congressional commitment of the kind outlined in Section 14 would go a long way towards achieving the objectives listed in Section 3 of S. 1644.

COMMENTS ON S. 829 (Sen. Bellmon's Bill)

In our discussion of S. 1644, we have already commented about the substance of a national weather modification policy and program. Most of our comments also can be applied to S. 829.

We should note explicitly that we do not believe that the National Aeronautics and Space Administration (NASA) should be charged with principal responsibility for a national weather modification program.

It is widely acknowledged that NASA has done a magnificent job in developing the hardware needed for satellite technology and exploration. It also is well-known that these accomplishments have been made at costs that dwarf the budgets of most atmospheric science programs and make our national weather modification program look miniscule.

The problems in weather modification are of a scientific nature involving a high level of expertise in the nature of atmospheric aerosols, clouds and precipitation, and storm systems and their interactions with the surroundings. NASA does not have the broad-based meteorological expertise to deal successfully with a national weather modification of the scale visualized in both S. 829 and S. 1644.

We are particularly concerned that S. 829 does not include a strong program of fundamental research on weather modification problems within the National Science Foundation.

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